

JARE Data Reports, No. 357 (Oceanography 36), December 2016

Oceanographic Data of the 53rd Japanese Antarctic Research Expedition
from December 2011 to March 2012

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The results of tidal observations at Syowa Station, Antarctic are presented in this report.

The tidal observations were carried out by the winter party of JARE-52 from February 2011 to January 2012.

Tidal observations at Syowa Station

Tidal observations have been ongoing at Syowa Station since 1965. The tide gauge (QWP-8-303D, Meisei Denki Co.) was installed on the sea bottom, at a depth of about 15 m, in Nishino-ura Cove, East Ongul Island. The results obtained from February 2011 to January 2012 are described in this report. The methodology of tidal observations followed Odamaki *et al.* (1991).

In this system, the relative water pressure compensated for atmospheric pressure is measured with a quartz oscillator. The range of the sensor is 0–50 m, and its precision is 0.01 m. The data were sampled once every 2 s, averaged over 30 s, and recorded on a hard disk of a recording PC. The gauge was maintained by a member of the winter party of JARE-52 throughout the year. Hourly sea level data were recorded, and daily and monthly mean sea level were calculated from the hourly data. The results are presented in [Table 1](#). The least squares method was employed to the harmonic analysis for 369 days. The harmonic constants, characteristics of the tide, and other relevant details are shown in [Table 2](#).

On the zero level of the tide gauge:

Every summer, the zero level of the tide gauge is routinely checked. In February 1, 2001, the level of 500 cm below Bench Mark No.1040 was adopted as the reference (zero level) of the tide levels.

Acknowledgments

The author would like to express his sincere thanks to all members of JARE-53 and JARE-52 for their helpful support and valuable advice. The author also sincerely thanks Mr. Shunsuke Iwanami, a member of the JARE-52 winter party, who maintained the tide gauge throughout the year.

Reference

Odamaki, M., Michida, Y., Noguchi, I., Iwanaga, Y., Ikeda, S. and Iwamoto, K. (1991): Mean sea-level observed at Syowa Station, East Antarctica. Proc. NIPR Symp. Antarct. Geosci., **5**, 20–28.

Table 1. Hourly tidal observations at Syowa Station from February 2011 to January 2012

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Feb. 1–Feb. 28, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|------|----------------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 265 | 272 | 280 | 288 | 294 | 292 | 280 | 260 | 234 | 205 | 181 | 168 | 165 | 176 | 199 | 225 | 252 | 275 | 287 | 288 | 280 | 267 | 254 | 246 | 5933 | 247 | 6177 | 247 |
| 2 | 244 | 251 | 262 | 274 | 286 | 292 | 286 | 270 | 246 | 215 | 187 | 168 | 160 | 166 | 186 | 213 | 240 | 263 | 278 | 282 | 275 | 262 | 247 | 235 | 5788 | 241 | 6018 | 241 |
| 3 | 230 | 235 | 249 | 264 | 280 | 292 | 291 | 279 | 258 | 230 | 200 | 176 | 164 | 165 | 180 | 205 | 233 | 256 | 273 | 282 | 276 | 262 | 247 | 232 | 5759 | 240 | 5984 | 239 |
| 4 | 225 | 225 | 236 | 257 | 277 | 293 | 300 | 294 | 279 | 255 | 226 | 201 | 185 | 180 | 190 | 214 | 240 | 263 | 283 | 292 | 287 | 275 | 257 | 240 | 5974 | 249 | 6203 | 248 |
| 5 | 229 | 225 | 231 | 249 | 271 | 291 | 300 | 301 | 292 | 272 | 245 | 220 | 201 | 192 | 197 | 213 | 237 | 260 | 278 | 287 | 285 | 273 | 253 | 235 | 6037 | 252 | 6258 | 250 |
| 6 | 221 | 211 | 214 | 229 | 250 | 271 | 285 | 290 | 286 | 271 | 250 | 228 | 209 | 198 | 197 | 209 | 230 | 251 | 270 | 278 | 279 | 270 | 251 | 231 | 5879 | 245 | 6094 | 244 |
| 7 | 215 | 203 | 199 | 208 | 228 | 250 | 266 | 276 | 277 | 268 | 253 | 233 | 216 | 205 | 203 | 211 | 228 | 247 | 265 | 276 | 278 | 271 | 256 | 235 | 5767 | 240 | 5985 | 239 |
| 8 | 218 | 207 | 200 | 203 | 219 | 237 | 252 | 265 | 271 | 267 | 257 | 242 | 228 | 220 | 217 | 223 | 235 | 250 | 266 | 277 | 281 | 276 | 262 | 244 | 5817 | 242 | 6044 | 242 |
| 9 | 227 | 214 | 205 | 203 | 213 | 228 | 242 | 254 | 263 | 264 | 260 | 252 | 240 | 234 | 236 | 239 | 247 | 262 | 274 | 281 | 285 | 281 | 269 | 255 | 5928 | 247 | 6166 | 247 |
| 10 | 238 | 223 | 211 | 206 | 208 | 218 | 228 | 237 | 246 | 250 | 249 | 247 | 243 | 240 | 244 | 249 | 255 | 265 | 277 | 281 | 284 | 283 | 273 | 260 | 5915 | 246 | 6164 | 247 |
| 11 | 249 | 233 | 220 | 214 | 213 | 215 | 222 | 230 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 293 | 294 | 290 | 284 | 274 | ---- | --- | ---- | --- |
| 12 | 265 | 253 | 241 | 232 | 226 | 224 | 222 | 219 | 220 | 224 | 227 | 233 | 238 | 245 | 256 | 265 | 275 | 283 | 285 | 287 | 286 | 282 | 276 | 270 | 6034 | 251 | 6296 | 252 |
| 13 | 262 | 254 | 246 | 238 | 229 | 222 | 212 | 205 | 202 | 198 | 199 | 207 | 217 | 231 | 247 | 263 | 276 | 284 | 289 | 289 | 285 | 281 | 274 | 267 | 5877 | 245 | 6142 | 246 |
| 14 | 265 | 262 | 258 | 253 | 245 | 234 | 220 | 204 | 191 | 182 | 179 | 183 | 192 | 209 | 232 | 253 | 268 | 280 | 285 | 281 | 275 | 267 | 258 | 255 | 5731 | 239 | 5985 | 239 |
| 15 | 254 | 254 | 254 | 253 | 251 | 241 | 224 | 204 | 183 | 166 | 158 | 158 | 166 | 186 | 213 | 239 | 264 | 281 | 288 | 288 | 283 | 271 | 263 | 261 | 5603 | 233 | 5865 | 235 |
| 16 | 262 | 267 | 274 | 279 | 280 | 275 | 258 | 232 | 204 | 180 | 159 | 153 | 160 | 177 | 206 | 237 | 269 | 298 | 313 | 315 | 307 | 294 | 282 | 275 | 5956 | 248 | 6230 | 249 |
| 17 | 274 | 283 | 291 | 295 | 300 | 299 | 287 | 264 | 233 | 200 | 171 | 155 | 150 | 160 | 185 | 215 | 244 | 268 | 281 | 283 | 271 | 255 | 239 | 224 | 5827 | 243 | 6048 | 242 |
| 18 | 221 | 229 | 244 | 265 | 284 | 295 | 294 | 281 | 255 | 222 | 189 | 164 | 151 | 156 | 178 | 206 | 236 | 262 | 279 | 285 | 275 | 260 | 240 | 221 | 5692 | 237 | 5905 | 236 |
| 19 | 213 | 218 | 235 | 260 | 288 | 310 | 320 | 317 | 302 | 274 | 244 | 216 | 196 | 192 | 205 | 230 | 256 | 282 | 301 | 309 | 302 | 283 | 258 | 235 | 6246 | 260 | 6463 | 259 |
| 20 | 217 | 211 | 221 | 243 | 269 | 295 | 311 | 314 | 307 | 285 | 254 | 224 | 198 | 184 | 188 | 205 | 226 | 247 | 265 | 272 | 265 | 248 | 223 | 196 | 5868 | 245 | 6042 | 242 |
| 21 | 174 | 161 | 163 | 181 | 208 | 238 | 262 | 277 | 284 | 276 | 257 | 236 | 216 | 204 | 204 | 217 | 238 | 259 | 277 | 288 | 285 | 273 | 251 | 222 | 5651 | 235 | 5850 | 234 |
| 22 | 199 | 181 | 172 | 181 | 202 | 228 | 254 | 273 | 285 | 288 | 280 | 266 | 251 | 239 | 235 | 242 | 257 | 276 | 291 | 300 | 302 | 293 | 273 | 250 | 6018 | 251 | 6245 | 250 |
| 23 | 227 | 206 | 192 | 190 | 202 | 222 | 241 | 259 | 274 | 281 | 282 | 276 | 267 | 262 | 260 | 262 | 273 | 287 | 300 | 310 | 312 | 306 | 294 | 273 | 6258 | 261 | 6511 | 260 |
| 24 | 253 | 233 | 216 | 206 | 207 | 216 | 228 | 239 | 251 | 260 | 264 | 266 | 264 | 264 | 267 | 270 | 275 | 284 | 293 | 300 | 301 | 298 | 288 | 275 | 6218 | 259 | 6477 | 259 |
| 25 | 259 | 243 | 229 | 216 | 208 | 209 | 210 | 213 | 220 | 227 | 233 | 241 | 247 | 253 | 264 | 273 | 279 | 284 | 290 | 295 | 294 | 291 | 287 | 278 | 6043 | 252 | 6310 | 252 |
| 26 | 267 | 258 | 249 | 238 | 229 | 222 | 214 | 210 | 209 | 210 | 215 | 223 | 231 | 244 | 258 | 273 | 283 | 288 | 292 | 294 | 291 | 288 | 284 | 279 | 6049 | 252 | 6324 | 253 |
| 27 | 275 | 270 | 265 | 260 | 252 | 241 | 229 | 218 | 207 | 200 | 200 | 205 | 216 | 232 | 251 | 269 | 282 | 290 | 294 | 291 | 285 | 280 | 275 | 273 | 6060 | 253 | 6332 | 253 |
| 28 | 272 | 272 | 272 | 272 | 269 | 261 | 245 | 227 | 210 | 195 | 187 | 189 | 198 | 214 | 235 | 258 | 275 | 284 | 288 | 284 | 275 | 265 | 258 | 255 | 5960 | 248 | 6216 | 249 |
| 1 | 256 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 246.7 | cm | (27 days mean) | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Mar. 1–Mar. 31, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 256 | 263 | 270 | 275 | 278 | 274 | 260 | 241 | 219 | 200 | 187 | 183 | 188 | 204 | 225 | 249 | 271 | 285 | 289 | 286 | 274 | 261 | 253 | 246 | 5937 | 247 | 6185 | 247 |
| 2 | 248 | 259 | 271 | 282 | 291 | 292 | 282 | 264 | 240 | 216 | 197 | 188 | 188 | 202 | 224 | 248 | 271 | 287 | 293 | 289 | 276 | 259 | 246 | 239 | 6052 | 252 | 6293 | 252 |
| 3 | 241 | 251 | 267 | 284 | 297 | 303 | 298 | 283 | 258 | 231 | 207 | 191 | 187 | 197 | 218 | 242 | 267 | 285 | 291 | 286 | 273 | 254 | 234 | 222 | 6067 | 253 | 6287 | 251 |
| 4 | 220 | 226 | 245 | 265 | 283 | 295 | 295 | 284 | 261 | 235 | 209 | 190 | 181 | 187 | 205 | 229 | 253 | 272 | 280 | 277 | 263 | 243 | 221 | 206 | 5825 | 243 | 6025 | 241 |
| 5 | 200 | 205 | 223 | 245 | 269 | 288 | 296 | 291 | 274 | 251 | 226 | 206 | 194 | 196 | 211 | 235 | 260 | 278 | 289 | 290 | 278 | 255 | 233 | 215 | 5908 | 246 | 6111 | 244 |
| 6 | 203 | 207 | 222 | 245 | 272 | 295 | 306 | 307 | 296 | 275 | 251 | 231 | 216 | 211 | 222 | 241 | 262 | 279 | 290 | 290 | 278 | 255 | 230 | 209 | 6093 | 254 | 6286 | 251 |
| 7 | 193 | 188 | 197 | 218 | 244 | 268 | 283 | 286 | 282 | 267 | 244 | 225 | 210 | 201 | 208 | 225 | 246 | 263 | 276 | 279 | 269 | 250 | 225 | 202 | 5749 | 240 | 5934 | 237 |
| 8 | 185 | 178 | 183 | 200 | 226 | 250 | 269 | 280 | 280 | 272 | 256 | 238 | 226 | 218 | 221 | 235 | 254 | 271 | 284 | 290 | 284 | 268 | 244 | 222 | 5834 | 243 | 6040 | 242 |
| 9 | 206 | 194 | 196 | 209 | 230 | 255 | 276 | 291 | 298 | 295 | 286 | 272 | 260 | 255 | 255 | 264 | 279 | 294 | 304 | 309 | 304 | 288 | 267 | 243 | 6330 | 264 | 6551 | 262 |
| 10 | 221 | 207 | 200 | 204 | 218 | 236 | 254 | 268 | 276 | 277 | 272 | 262 | 257 | 254 | 253 | 260 | 273 | 285 | 296 | 302 | 299 | 289 | 272 | 250 | 6185 | 258 | 6416 | 257 |
| 11 | 231 | 215 | 205 | 202 | 210 | 224 | 238 | 251 | 259 | 264 | 264 | 261 | 258 | 257 | 261 | 269 | 278 | 288 | 298 | 302 | 300 | 291 | 277 | 261 | 6164 | 257 | 6407 | 256 |
| 12 | 243 | 229 | 218 | 212 | 214 | 221 | 230 | 239 | 246 | 252 | 257 | 258 | 260 | 265 | 271 | 279 | 288 | 295 | 303 | 308 | 306 | 299 | 289 | 278 | 6260 | 261 | 6522 | 261 |
| 13 | 262 | 250 | 241 | 231 | 228 | 228 | 230 | 233 | 237 | 244 | 249 | 252 | 259 | 267 | 276 | 285 | 292 | 298 | 302 | 301 | 296 | 289 | 281 | 272 | 6303 | 263 | 6565 | 263 |
| 14 | 262 | 254 | 247 | 237 | 231 | 225 | 218 | 213 | 209 | 210 | 214 | 221 | 235 | 249 | 264 | 280 | 291 | 296 | 301 | 298 | 294 | 288 | 282 | 280 | 6099 | 254 | 6377 | 255 |
| 15 | 278 | 277 | 276 | 273 | 269 | 260 | 250 | 239 | 228 | 223 | 226 | 234 | 246 | 264 | 284 | 306 | 319 | 324 | 326 | 322 | 311 | 300 | 292 | 289 | 6616 | 276 | 6905 | 276 |
| 16 | 289 | 292 | 296 | 298 | 297 | 288 | 273 | 252 | 234 | 221 | 214 | 216 | 227 | 246 | 270 | 293 | 310 | 319 | 319 | 310 | 299 | 285 | 274 | 271 | 6593 | 275 | 6868 | 275 |
| 17 | 275 | 285 | 296 | 305 | 310 | 306 | 290 | 266 | 241 | 218 | 201 | 197 | 204 | 221 | 244 | 270 | 291 | 302 | 304 | 294 | 277 | 258 | 242 | 237 | 6334 | 264 | 6574 | 263 |
| 18 | 240 | 252 | 270 | 287 | 301 | 306 | 296 | 273 | 245 | 215 | 190 | 177 | 177 | 190 | 213 | 240 | 263 | 277 | 282 | 273 | 252 | 230 | 210 | 199 | 5858 | 244 | 6060 | 242 |
| 19 | 202 | 218 | 241 | 268 | 292 | 307 | 310 | 297 | 271 | 241 | 215 | 198 | 193 | 202 | 221 | 246 | 270 | 286 | 292 | 285 | 265 | 237 | 211 | 193 | 5961 | 248 | 6148 | 246 |
| 20 | 187 | 198 | 223 | 251 | 281 | 306 | 319 | 316 | 299 | 271 | 243 | 218 | 204 | 205 | 221 | 245 | 265 | 281 | 290 | 284 | 264 | 236 | 205 | 179 | 5991 | 250 | 6156 | 246 |
| 21 | 165 | 166 | 185 | 214 | 247 | 277 | 299 | 307 | 301 | 283 | 259 | 235 | 218 | 214 | 222 | 243 | 264 | 279 | 289 | 288 | 273 | 246 | 213 | 185 | 5872 | 245 | 6035 | 241 |
| 22 | 163 | 155 | 165 | 188 | 220 | 251 | 277 | 294 | 298 | 291 | 277 | 257 | 242 | 235 | 237 | 253 | 273 | 287 | 299 | 300 | 289 | 265 | 234 | 205 | 5955 | 248 | 6133 | 245 |
| 23 | 178 | 159 | 158 | 172 | 194 | 222 | 248 | 267 | 276 | 279 | 273 | 260 | 249 | 241 | 238 | 248 | 264 | 278 | 289 | 292 | 287 | 270 | 243 | 216 | 5801 | 242 | 5991 | 240 |
| 24 | 190 | 167 | 156 | 158 | 169 | 189 | 210 | 227 | 238 | 248 | 249 | 244 | 241 | 237 | 236 | 243 | 255 | 267 | 278 | 283 | 281 | 270 | 251 | 231 | 5518 | 230 | 5727 | 229 |
| 25 | 209 | 189 | 176 | 169 | 172 | 184 | 196 | 209 | 222 | 233 | 239 | 242 | 245 | 248 | 251 | 256 | 264 | 274 | 283 | 288 | 287 | 281 | 270 | 255 | 5642 | 235 | 5880 | 235 |
| 26 | 238 | 224 | 212 | 200 | 196 | 195 | 199 | 206 | 211 | 218 | 227 | 233 | 239 | 246 | 256 | 263 | 267 | 272 | 277 | 279 | 278 | 273 | 267 | 257 | 5733 | 239 | 5980 | 239 |
| 27 | 247 | 240 | 230 | 221 | 214 | 207 | 203 | 202 | 201 | 204 | 212 | 218 | 227 | 240 | 252 | 262 | 268 | 270 | 270 | 268 | 265 | 260 | 254 | 252 | 5687 | 237 | 5936 | 237 |
| 28 | 249 | 246 | 244 | 240 | 234 | 226 | 217 | 208 | 200 | 197 | 201 | 206 | 217 | 232 | 248 | 261 | 269 | 272 | 269 | 264 | 260 | 252 | 247 | 247 | 5706 | 238 | 5955 | 238 |
| 29 | 249 | 251 | 255 | 257 | 255 | 248 | 235 | 220 | 208 | 198 | 196 | 200 | 209 | 225 | 243 | 258 | 268 | 271 | 267 | 259 | 249 | 239 | 234 | 233 | 5727 | 239 | 5965 | 239 |
| 30 | 238 | 248 | 258 | 264 | 268 | 266 | 255 | 239 | 222 | 209 | 202 | 202 | 212 | 228 | 246 | 265 | 278 | 282 | 279 | 269 | 254 | 240 | 231 | 230 | 5885 | 245 | 6121 | 245 |
| 31 | 236 | 247 | 262 | 276 | 284 | 286 | 277 | 259 | 239 | 220 | 208 | 203 | 207 | 222 | 240 | 258 | 273 | 278 | 274 | 263 | 245 | 226 | 214 | 210 | 5907 | 246 | 6121 | 245 |
| 1 | 214 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 249.5 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Apr. 1–Apr. 30, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 214 | 229 | 248 | 266 | 281 | 288 | 283 | 269 | 248 | 226 | 210 | 202 | 203 | 215 | 233 | 251 | 267 | 274 | 272 | 259 | 238 | 216 | 199 | 190 | 5781 | 241 | 5974 | 239 |
| 2 | 193 | 207 | 227 | 250 | 271 | 282 | 282 | 271 | 252 | 231 | 212 | 199 | 197 | 208 | 225 | 246 | 263 | 271 | 272 | 261 | 239 | 215 | 196 | 183 | 5653 | 236 | 5836 | 233 |
| 3 | 183 | 198 | 221 | 248 | 274 | 294 | 300 | 296 | 284 | 263 | 245 | 232 | 225 | 233 | 252 | 271 | 291 | 303 | 305 | 296 | 275 | 250 | 226 | 208 | 6173 | 257 | 6375 | 255 |
| 4 | 202 | 209 | 230 | 256 | 282 | 304 | 313 | 312 | 302 | 283 | 264 | 249 | 239 | 242 | 255 | 273 | 290 | 300 | 302 | 291 | 270 | 242 | 213 | 191 | 6314 | 263 | 6492 | 260 |
| 5 | 178 | 179 | 195 | 218 | 245 | 269 | 283 | 288 | 282 | 268 | 251 | 234 | 224 | 222 | 231 | 249 | 267 | 279 | 284 | 280 | 263 | 236 | 208 | 187 | 5820 | 243 | 5991 | 240 |
| 6 | 171 | 169 | 180 | 203 | 231 | 257 | 276 | 288 | 289 | 280 | 268 | 255 | 246 | 243 | 250 | 264 | 283 | 297 | 304 | 301 | 290 | 268 | 241 | 218 | 6072 | 253 | 6271 | 251 |
| 7 | 199 | 190 | 195 | 213 | 235 | 260 | 281 | 295 | 301 | 299 | 290 | 280 | 272 | 269 | 271 | 281 | 296 | 307 | 314 | 315 | 305 | 286 | 260 | 235 | 6449 | 269 | 6663 | 267 |
| 8 | 214 | 200 | 197 | 206 | 224 | 244 | 264 | 278 | 286 | 288 | 285 | 279 | 274 | 271 | 273 | 280 | 291 | 301 | 309 | 310 | 301 | 284 | 263 | 239 | 6361 | 265 | 6580 | 263 |
| 9 | 219 | 204 | 197 | 198 | 209 | 225 | 240 | 254 | 264 | 268 | 272 | 268 | 265 | 267 | 268 | 271 | 281 | 289 | 296 | 297 | 292 | 280 | 264 | 246 | 6134 | 256 | 6361 | 254 |
| 10 | 227 | 210 | 200 | 196 | 199 | 207 | 217 | 228 | 237 | 245 | 251 | 254 | 256 | 259 | 263 | 268 | 274 | 280 | 285 | 286 | 282 | 275 | 264 | 253 | 5916 | 247 | 6154 | 246 |
| 11 | 238 | 224 | 216 | 209 | 205 | 206 | 209 | 215 | 221 | 228 | 238 | 246 | 252 | 262 | 270 | 276 | 281 | 285 | 288 | 288 | 284 | 279 | 275 | 267 | 5962 | 248 | 6223 | 249 |
| 12 | 261 | 255 | 248 | 240 | 234 | 229 | 225 | 223 | 222 | 226 | 235 | 246 | 256 | 267 | 278 | 286 | 290 | 291 | 290 | 288 | 283 | 278 | 273 | 275 | 6199 | 258 | 6475 | 259 |
| 13 | 276 | 277 | 275 | 271 | 265 | 253 | 242 | 233 | 225 | 221 | 226 | 233 | 243 | 258 | 270 | 279 | 281 | 279 | 271 | 261 | 249 | 240 | 235 | 234 | 6097 | 254 | 6337 | 253 |
| 14 | 240 | 248 | 253 | 257 | 255 | 246 | 232 | 216 | 203 | 193 | 193 | 201 | 213 | 231 | 251 | 267 | 275 | 276 | 269 | 257 | 243 | 231 | 226 | 229 | 5705 | 238 | 5945 | 238 |
| 15 | 240 | 255 | 271 | 285 | 291 | 288 | 275 | 256 | 235 | 219 | 212 | 213 | 222 | 240 | 260 | 275 | 286 | 288 | 278 | 261 | 240 | 221 | 209 | 209 | 6029 | 251 | 6251 | 250 |
| 16 | 222 | 240 | 264 | 286 | 300 | 306 | 298 | 279 | 255 | 233 | 217 | 209 | 214 | 229 | 246 | 264 | 276 | 278 | 269 | 250 | 224 | 199 | 180 | 173 | 5911 | 246 | 6093 | 244 |
| 17 | 182 | 203 | 230 | 261 | 286 | 302 | 305 | 294 | 273 | 250 | 231 | 218 | 217 | 230 | 249 | 267 | 282 | 287 | 282 | 265 | 236 | 204 | 179 | 164 | 5897 | 246 | 6061 | 242 |
| 18 | 164 | 182 | 210 | 243 | 276 | 300 | 314 | 314 | 298 | 277 | 258 | 241 | 234 | 241 | 257 | 273 | 288 | 299 | 295 | 279 | 254 | 220 | 188 | 166 | 6071 | 253 | 6226 | 249 |
| 19 | 155 | 162 | 187 | 219 | 251 | 283 | 305 | 313 | 310 | 296 | 280 | 264 | 253 | 254 | 266 | 283 | 299 | 310 | 310 | 300 | 278 | 243 | 209 | 181 | 6211 | 259 | 6373 | 255 |
| 20 | 162 | 159 | 172 | 197 | 228 | 259 | 285 | 301 | 306 | 300 | 291 | 278 | 265 | 263 | 268 | 282 | 299 | 308 | 313 | 309 | 290 | 263 | 230 | 198 | 6226 | 259 | 6399 | 256 |
| 21 | 173 | 158 | 159 | 173 | 196 | 222 | 247 | 267 | 279 | 281 | 276 | 269 | 262 | 255 | 257 | 266 | 280 | 293 | 299 | 298 | 289 | 269 | 240 | 214 | 5922 | 247 | 6112 | 244 |
| 22 | 190 | 168 | 161 | 165 | 178 | 197 | 219 | 237 | 250 | 260 | 264 | 260 | 258 | 257 | 256 | 261 | 273 | 285 | 292 | 296 | 291 | 278 | 261 | 240 | 5797 | 242 | 6017 | 241 |
| 23 | 220 | 201 | 189 | 186 | 189 | 200 | 215 | 230 | 242 | 253 | 261 | 261 | 262 | 267 | 268 | 269 | 273 | 281 | 287 | 293 | 292 | 285 | 275 | 262 | 5961 | 248 | 6210 | 248 |
| 24 | 249 | 236 | 227 | 220 | 218 | 221 | 229 | 238 | 246 | 256 | 265 | 269 | 274 | 279 | 281 | 281 | 282 | 282 | 283 | 283 | 281 | 274 | 269 | 262 | 6205 | 259 | 6457 | 258 |
| 25 | 252 | 242 | 236 | 228 | 220 | 219 | 219 | 219 | 226 | 235 | 243 | 253 | 263 | 270 | 277 | 281 | 281 | 281 | 281 | 281 | 279 | 275 | 275 | 273 | 6109 | 255 | 6378 | 255 |
| 26 | 269 | 268 | 265 | 260 | 254 | 247 | 240 | 235 | 232 | 235 | 240 | 247 | 256 | 264 | 270 | 274 | 275 | 269 | 263 | 260 | 253 | 247 | 248 | 248 | 6119 | 255 | 6369 | 255 |
| 27 | 250 | 255 | 258 | 257 | 255 | 251 | 241 | 231 | 224 | 221 | 224 | 230 | 238 | 248 | 258 | 263 | 264 | 260 | 251 | 242 | 232 | 224 | 223 | 226 | 5826 | 243 | 6058 | 242 |
| 28 | 232 | 243 | 252 | 259 | 263 | 260 | 250 | 241 | 230 | 222 | 221 | 226 | 233 | 244 | 255 | 262 | 264 | 260 | 251 | 237 | 223 | 212 | 207 | 209 | 5756 | 240 | 5976 | 239 |
| 29 | 220 | 233 | 248 | 261 | 268 | 269 | 262 | 248 | 234 | 223 | 217 | 218 | 226 | 238 | 251 | 262 | 266 | 262 | 254 | 238 | 220 | 206 | 198 | 198 | 5720 | 238 | 5930 | 237 |
| 30 | 210 | 227 | 246 | 265 | 279 | 284 | 281 | 270 | 257 | 243 | 235 | 234 | 240 | 252 | 266 | 278 | 284 | 282 | 272 | 256 | 234 | 214 | 201 | 198 | 6008 | 250 | 6215 | 249 |
| 1 | 207 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 250.6 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : May 1–May 31, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 207 | 224 | 247 | 272 | 290 | 301 | 302 | 294 | 281 | 268 | 256 | 252 | 255 | 266 | 281 | 293 | 301 | 302 | 291 | 273 | 249 | 225 | 206 | 196 | 6332 | 264 | 6533 | 261 |
| 2 | 201 | 217 | 238 | 263 | 285 | 300 | 307 | 301 | 289 | 275 | 259 | 250 | 250 | 256 | 271 | 284 | 294 | 297 | 289 | 272 | 247 | 220 | 197 | 183 | 6245 | 260 | 6429 | 257 |
| 3 | 184 | 196 | 217 | 246 | 271 | 291 | 302 | 302 | 293 | 280 | 266 | 255 | 251 | 257 | 268 | 281 | 293 | 297 | 292 | 280 | 255 | 225 | 200 | 182 | 6184 | 258 | 6360 | 254 |
| 4 | 176 | 182 | 202 | 229 | 256 | 281 | 297 | 302 | 299 | 289 | 276 | 265 | 259 | 261 | 271 | 285 | 297 | 303 | 301 | 292 | 269 | 239 | 211 | 188 | 6230 | 260 | 6405 | 256 |
| 5 | 175 | 174 | 188 | 212 | 238 | 265 | 286 | 296 | 299 | 294 | 284 | 276 | 271 | 269 | 279 | 292 | 305 | 314 | 319 | 314 | 296 | 270 | 243 | 218 | 6377 | 266 | 6577 | 263 |
| 6 | 200 | 194 | 202 | 220 | 245 | 270 | 292 | 306 | 313 | 311 | 304 | 298 | 290 | 286 | 290 | 299 | 310 | 320 | 322 | 317 | 304 | 281 | 253 | 225 | 6652 | 277 | 6856 | 274 |
| 7 | 204 | 192 | 189 | 198 | 217 | 238 | 258 | 274 | 284 | 287 | 284 | 280 | 275 | 271 | 272 | 278 | 288 | 297 | 302 | 302 | 293 | 277 | 254 | 229 | 6243 | 260 | 6452 | 258 |
| 8 | 209 | 192 | 184 | 188 | 199 | 217 | 237 | 252 | 265 | 275 | 278 | 277 | 277 | 276 | 275 | 279 | 285 | 294 | 301 | 303 | 299 | 288 | 274 | 256 | 6180 | 258 | 6416 | 257 |
| 9 | 236 | 222 | 211 | 207 | 212 | 221 | 234 | 248 | 260 | 271 | 279 | 282 | 285 | 285 | 285 | 284 | 285 | 290 | 293 | 294 | 293 | 288 | 279 | 266 | 6310 | 263 | 6563 | 263 |
| 10 | 253 | 239 | 225 | 217 | 214 | 215 | 221 | 228 | 237 | 247 | 256 | 263 | 267 | 268 | 269 | 267 | 265 | 265 | 265 | 266 | 262 | 258 | 257 | 249 | 5973 | 249 | 6216 | 249 |
| 11 | 243 | 238 | 227 | 220 | 214 | 208 | 208 | 211 | 215 | 224 | 234 | 244 | 253 | 259 | 263 | 263 | 259 | 255 | 251 | 249 | 247 | 247 | 249 | 251 | 5732 | 239 | 5988 | 240 |
| 12 | 256 | 259 | 258 | 255 | 249 | 241 | 233 | 228 | 227 | 229 | 236 | 247 | 257 | 265 | 273 | 273 | 270 | 264 | 254 | 245 | 240 | 237 | 238 | 246 | 5980 | 249 | 6238 | 250 |
| 13 | 258 | 269 | 278 | 283 | 281 | 273 | 262 | 250 | 241 | 238 | 239 | 247 | 259 | 267 | 277 | 281 | 276 | 269 | 255 | 237 | 224 | 216 | 215 | 223 | 6118 | 255 | 6357 | 254 |
| 14 | 239 | 259 | 276 | 290 | 295 | 292 | 283 | 268 | 253 | 244 | 239 | 242 | 253 | 264 | 272 | 279 | 279 | 269 | 253 | 232 | 210 | 194 | 189 | 195 | 6069 | 253 | 6279 | 251 |
| 15 | 210 | 232 | 258 | 283 | 298 | 303 | 300 | 285 | 269 | 255 | 246 | 246 | 252 | 263 | 274 | 283 | 284 | 276 | 257 | 235 | 208 | 181 | 166 | 166 | 6030 | 251 | 6207 | 248 |
| 16 | 177 | 199 | 230 | 260 | 284 | 300 | 306 | 297 | 281 | 266 | 254 | 249 | 252 | 262 | 274 | 283 | 290 | 287 | 272 | 249 | 219 | 187 | 164 | 152 | 5994 | 250 | 6151 | 246 |
| 17 | 157 | 177 | 205 | 238 | 269 | 295 | 310 | 312 | 305 | 292 | 279 | 271 | 271 | 279 | 292 | 307 | 316 | 318 | 311 | 290 | 261 | 229 | 198 | 177 | 6359 | 265 | 6530 | 261 |
| 18 | 171 | 180 | 202 | 232 | 264 | 292 | 313 | 321 | 320 | 311 | 299 | 287 | 282 | 285 | 294 | 306 | 316 | 322 | 318 | 303 | 278 | 246 | 211 | 181 | 6534 | 272 | 6698 | 268 |
| 19 | 164 | 161 | 174 | 198 | 226 | 254 | 280 | 295 | 299 | 297 | 290 | 279 | 271 | 270 | 276 | 290 | 303 | 312 | 314 | 308 | 290 | 264 | 232 | 202 | 6249 | 260 | 6428 | 257 |
| 20 | 179 | 169 | 172 | 188 | 212 | 237 | 261 | 280 | 291 | 293 | 290 | 284 | 276 | 270 | 273 | 283 | 295 | 306 | 311 | 310 | 298 | 277 | 251 | 222 | 6228 | 260 | 6424 | 257 |
| 21 | 196 | 180 | 172 | 176 | 193 | 211 | 231 | 251 | 265 | 271 | 271 | 269 | 263 | 257 | 255 | 259 | 267 | 278 | 287 | 291 | 287 | 276 | 258 | 236 | 5900 | 246 | 6116 | 245 |
| 22 | 216 | 199 | 187 | 187 | 195 | 212 | 231 | 248 | 265 | 278 | 282 | 283 | 284 | 281 | 278 | 277 | 283 | 290 | 298 | 302 | 300 | 293 | 283 | 267 | 6219 | 259 | 6472 | 259 |
| 23 | 253 | 239 | 225 | 219 | 220 | 227 | 237 | 249 | 260 | 269 | 274 | 275 | 273 | 271 | 266 | 259 | 259 | 261 | 264 | 269 | 269 | 267 | 262 | 253 | 6120 | 255 | 6362 | 254 |
| 24 | 242 | 232 | 223 | 217 | 213 | 213 | 218 | 227 | 236 | 245 | 253 | 259 | 262 | 263 | 262 | 259 | 255 | 255 | 257 | 260 | 262 | 265 | 265 | 265 | 5908 | 246 | 6173 | 247 |
| 25 | 265 | 261 | 259 | 258 | 254 | 255 | 258 | 262 | 270 | 277 | 285 | 294 | 301 | 303 | 306 | 304 | 297 | 292 | 287 | 284 | 282 | 281 | 283 | 283 | 6701 | 279 | 6988 | 280 |
| 26 | 287 | 287 | 287 | 289 | 285 | 280 | 277 | 273 | 272 | 273 | 277 | 281 | 286 | 288 | 286 | 282 | 276 | 267 | 259 | 251 | 245 | 242 | 243 | 246 | 6539 | 272 | 6793 | 272 |
| 27 | 254 | 261 | 267 | 272 | 275 | 272 | 266 | 262 | 258 | 257 | 258 | 263 | 269 | 273 | 276 | 276 | 271 | 262 | 251 | 241 | 231 | 224 | 225 | 231 | 6195 | 258 | 6437 | 257 |
| 28 | 242 | 255 | 267 | 278 | 283 | 282 | 278 | 270 | 262 | 257 | 255 | 260 | 265 | 270 | 275 | 275 | 270 | 260 | 247 | 233 | 218 | 209 | 206 | 208 | 6125 | 255 | 6346 | 254 |
| 29 | 221 | 238 | 254 | 270 | 281 | 286 | 285 | 276 | 267 | 260 | 255 | 257 | 259 | 264 | 271 | 275 | 271 | 260 | 248 | 230 | 209 | 195 | 187 | 187 | 6006 | 250 | 6206 | 248 |
| 30 | 200 | 219 | 238 | 260 | 276 | 284 | 286 | 282 | 272 | 261 | 256 | 255 | 257 | 266 | 273 | 279 | 280 | 272 | 258 | 240 | 217 | 197 | 185 | 182 | 5995 | 250 | 6186 | 247 |
| 31 | 191 | 210 | 234 | 261 | 284 | 302 | 309 | 310 | 306 | 297 | 286 | 281 | 282 | 287 | 294 | 299 | 299 | 292 | 279 | 257 | 230 | 203 | 184 | 173 | 6350 | 265 | 6525 | 261 |
| 1 | 175 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 258.2 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : June 1–June 30, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|--------------|-------|----------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 175 | 189 | 212 | 237 | 263 | 284 | 295 | 296 | 293 | 282 | 274 | 270 | 268 | 275 | 288 | 298 | 305 | 306 | 299 | 282 | 256 | 230 | 206 | 190 | 6273 | 261 | 6459 | 258 |
| 2 | 186 | 196 | 217 | 243 | 269 | 293 | 311 | 316 | 314 | 308 | 297 | 290 | 287 | 288 | 296 | 307 | 317 | 319 | 314 | 298 | 275 | 246 | 216 | 194 | 6597 | 275 | 6780 | 271 |
| 3 | 183 | 184 | 201 | 225 | 250 | 277 | 298 | 309 | 312 | 308 | 299 | 291 | 285 | 284 | 291 | 302 | 312 | 319 | 319 | 310 | 290 | 264 | 234 | 207 | 6554 | 273 | 6743 | 270 |
| 4 | 189 | 184 | 189 | 208 | 233 | 257 | 279 | 295 | 302 | 300 | 294 | 286 | 278 | 274 | 275 | 283 | 294 | 300 | 305 | 302 | 286 | 263 | 237 | 209 | 6322 | 263 | 6510 | 260 |
| 5 | 188 | 175 | 173 | 185 | 206 | 230 | 251 | 270 | 283 | 286 | 283 | 279 | 274 | 266 | 265 | 273 | 280 | 290 | 299 | 300 | 291 | 277 | 254 | 229 | 6107 | 254 | 6314 | 253 |
| 6 | 207 | 192 | 184 | 186 | 201 | 220 | 240 | 260 | 276 | 285 | 287 | 286 | 284 | 278 | 274 | 277 | 285 | 295 | 304 | 310 | 310 | 302 | 287 | 269 | 6299 | 262 | 6548 | 262 |
| 7 | 249 | 231 | 219 | 217 | 222 | 233 | 248 | 265 | 278 | 287 | 291 | 291 | 286 | 279 | 273 | 270 | 270 | 274 | 282 | 289 | 290 | 289 | 283 | 272 | 6388 | 266 | 6647 | 266 |
| 8 | 259 | 245 | 233 | 225 | 222 | 227 | 236 | 246 | 258 | 267 | 273 | 277 | 275 | 269 | 263 | 255 | 250 | 248 | 252 | 256 | 259 | 262 | 263 | 260 | 6080 | 253 | 6335 | 253 |
| 9 | 255 | 248 | 239 | 231 | 225 | 222 | 223 | 228 | 237 | 244 | 251 | 257 | 259 | 255 | 249 | 242 | 233 | 224 | 224 | 225 | 225 | 232 | 238 | 243 | 5709 | 238 | 5958 | 238 |
| 10 | 249 | 251 | 251 | 247 | 242 | 237 | 233 | 233 | 236 | 240 | 245 | 253 | 258 | 258 | 253 | 249 | 240 | 228 | 222 | 217 | 216 | 221 | 232 | 245 | 5756 | 240 | 6017 | 241 |
| 11 | 261 | 276 | 286 | 293 | 297 | 295 | 291 | 288 | 289 | 289 | 293 | 298 | 299 | 298 | 297 | 288 | 275 | 259 | 243 | 227 | 215 | 212 | 217 | 227 | 6513 | 271 | 6758 | 270 |
| 12 | 245 | 263 | 279 | 295 | 302 | 299 | 295 | 287 | 277 | 271 | 273 | 276 | 279 | 284 | 285 | 281 | 273 | 256 | 238 | 217 | 196 | 185 | 182 | 187 | 6225 | 259 | 6430 | 257 |
| 13 | 205 | 227 | 250 | 275 | 291 | 298 | 298 | 291 | 282 | 271 | 268 | 270 | 273 | 280 | 285 | 286 | 283 | 269 | 251 | 227 | 201 | 180 | 167 | 166 | 6094 | 254 | 6273 | 251 |
| 14 | 179 | 200 | 228 | 257 | 282 | 300 | 306 | 306 | 299 | 287 | 282 | 281 | 282 | 290 | 300 | 307 | 307 | 300 | 286 | 260 | 229 | 203 | 180 | 169 | 6320 | 263 | 6495 | 260 |
| 15 | 175 | 192 | 218 | 249 | 278 | 302 | 317 | 320 | 315 | 304 | 293 | 288 | 288 | 292 | 302 | 312 | 315 | 313 | 305 | 282 | 252 | 221 | 190 | 169 | 6492 | 271 | 6656 | 266 |
| 16 | 164 | 171 | 191 | 220 | 250 | 277 | 297 | 305 | 306 | 298 | 287 | 279 | 275 | 277 | 287 | 298 | 308 | 311 | 309 | 295 | 269 | 239 | 207 | 178 | 6298 | 262 | 6462 | 258 |
| 17 | 164 | 161 | 173 | 197 | 224 | 252 | 275 | 288 | 293 | 288 | 279 | 270 | 261 | 259 | 265 | 276 | 290 | 297 | 299 | 294 | 275 | 248 | 217 | 188 | 6033 | 251 | 6201 | 248 |
| 18 | 168 | 158 | 160 | 177 | 202 | 227 | 249 | 267 | 276 | 274 | 267 | 259 | 248 | 242 | 244 | 253 | 267 | 277 | 285 | 287 | 276 | 256 | 230 | 203 | 5752 | 240 | 5933 | 237 |
| 19 | 181 | 164 | 161 | 170 | 187 | 209 | 231 | 249 | 261 | 264 | 261 | 254 | 245 | 237 | 235 | 241 | 253 | 266 | 278 | 284 | 281 | 270 | 251 | 229 | 5662 | 236 | 5871 | 235 |
| 20 | 209 | 193 | 185 | 187 | 198 | 217 | 237 | 253 | 265 | 271 | 269 | 263 | 256 | 248 | 242 | 243 | 250 | 262 | 275 | 282 | 284 | 280 | 268 | 251 | 5888 | 245 | 6122 | 245 |
| 21 | 234 | 218 | 207 | 205 | 210 | 223 | 237 | 250 | 262 | 269 | 271 | 266 | 257 | 247 | 239 | 235 | 237 | 243 | 254 | 264 | 268 | 268 | 263 | 255 | 5882 | 245 | 6127 | 245 |
| 22 | 245 | 234 | 227 | 224 | 226 | 234 | 246 | 259 | 270 | 277 | 283 | 282 | 276 | 269 | 262 | 257 | 256 | 258 | 265 | 273 | 277 | 278 | 277 | 273 | 6228 | 260 | 6494 | 260 |
| 23 | 266 | 259 | 254 | 250 | 248 | 250 | 255 | 261 | 267 | 271 | 274 | 273 | 266 | 258 | 248 | 240 | 232 | 228 | 229 | 232 | 235 | 238 | 239 | 239 | 6012 | 251 | 6251 | 250 |
| 24 | 239 | 238 | 236 | 234 | 234 | 233 | 235 | 239 | 243 | 245 | 249 | 249 | 245 | 239 | 232 | 225 | 214 | 207 | 203 | 201 | 203 | 205 | 208 | 215 | 5471 | 228 | 5692 | 228 |
| 25 | 221 | 226 | 232 | 234 | 237 | 240 | 240 | 240 | 244 | 245 | 247 | 250 | 251 | 249 | 244 | 240 | 232 | 223 | 216 | 212 | 210 | 210 | 213 | 221 | 5577 | 232 | 5809 | 232 |
| 26 | 232 | 243 | 254 | 263 | 272 | 276 | 276 | 275 | 272 | 271 | 271 | 271 | 271 | 270 | 266 | 260 | 251 | 238 | 226 | 214 | 203 | 197 | 195 | 200 | 5967 | 249 | 6179 | 247 |
| 27 | 212 | 225 | 241 | 256 | 267 | 274 | 275 | 273 | 271 | 269 | 268 | 271 | 274 | 276 | 277 | 275 | 268 | 257 | 244 | 227 | 212 | 202 | 197 | 201 | 6012 | 251 | 6226 | 249 |
| 28 | 214 | 231 | 252 | 273 | 290 | 299 | 302 | 301 | 294 | 289 | 285 | 282 | 285 | 287 | 290 | 291 | 285 | 276 | 260 | 238 | 218 | 199 | 186 | 184 | 6311 | 263 | 6505 | 260 |
| 29 | 194 | 210 | 231 | 256 | 277 | 292 | 299 | 300 | 293 | 285 | 279 | 276 | 277 | 282 | 288 | 294 | 294 | 286 | 273 | 252 | 227 | 203 | 184 | 176 | 6228 | 260 | 6408 | 256 |
| 30 | 180 | 195 | 218 | 243 | 268 | 288 | 299 | 301 | 294 | 286 | 277 | 271 | 271 | 275 | 282 | 291 | 294 | 290 | 281 | 261 | 236 | 208 | 183 | 168 | 6160 | 257 | 6326 | 253 |
| 1 | 166 | | | | | | | | | | | | | | | | | | | | | | | | Monthly Mean | | 254.5 cm | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : July 1–July 31, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 166 | 175 | 199 | 226 | 253 | 280 | 297 | 303 | 304 | 296 | 285 | 279 | 277 | 278 | 286 | 298 | 305 | 307 | 303 | 287 | 260 | 232 | 201 | 177 | 6274 | 261 | 6440 | 258 |
| 2 | 166 | 169 | 184 | 209 | 237 | 263 | 285 | 297 | 297 | 290 | 283 | 272 | 265 | 266 | 272 | 285 | 297 | 304 | 307 | 296 | 275 | 247 | 216 | 188 | 6170 | 257 | 6340 | 254 |
| 3 | 170 | 166 | 174 | 193 | 221 | 248 | 271 | 287 | 293 | 289 | 282 | 276 | 268 | 264 | 271 | 285 | 299 | 314 | 323 | 323 | 313 | 292 | 265 | 238 | 6325 | 264 | 6542 | 262 |
| 4 | 217 | 205 | 206 | 220 | 243 | 267 | 290 | 308 | 317 | 316 | 307 | 296 | 286 | 276 | 274 | 281 | 294 | 308 | 319 | 324 | 322 | 309 | 287 | 263 | 6735 | 281 | 6976 | 279 |
| 5 | 241 | 223 | 218 | 223 | 237 | 260 | 279 | 295 | 307 | 309 | 303 | 292 | 279 | 266 | 257 | 257 | 266 | 278 | 292 | 300 | 302 | 297 | 283 | 261 | 6525 | 272 | 6767 | 271 |
| 6 | 242 | 224 | 212 | 211 | 218 | 232 | 250 | 266 | 277 | 285 | 283 | 274 | 264 | 252 | 240 | 237 | 240 | 250 | 264 | 276 | 284 | 286 | 281 | 270 | 6118 | 255 | 6375 | 255 |
| 7 | 257 | 243 | 233 | 225 | 226 | 234 | 246 | 259 | 270 | 274 | 275 | 269 | 258 | 246 | 233 | 223 | 219 | 221 | 231 | 242 | 252 | 260 | 264 | 264 | 5924 | 247 | 6184 | 247 |
| 8 | 260 | 255 | 248 | 243 | 243 | 245 | 252 | 262 | 269 | 275 | 277 | 274 | 267 | 254 | 240 | 229 | 216 | 210 | 212 | 217 | 224 | 233 | 239 | 247 | 5891 | 245 | 6144 | 246 |
| 9 | 253 | 255 | 256 | 257 | 257 | 257 | 257 | 259 | 264 | 267 | 269 | 270 | 265 | 256 | 247 | 236 | 223 | 211 | 205 | 204 | 206 | 212 | 220 | 231 | 5837 | 243 | 6084 | 243 |
| 10 | 247 | 259 | 267 | 277 | 283 | 283 | 284 | 285 | 285 | 289 | 291 | 291 | 291 | 288 | 279 | 271 | 259 | 240 | 227 | 217 | 207 | 206 | 210 | 217 | 6253 | 261 | 6485 | 259 |
| 11 | 232 | 250 | 265 | 279 | 288 | 291 | 288 | 283 | 278 | 273 | 272 | 271 | 271 | 271 | 266 | 259 | 249 | 231 | 213 | 194 | 177 | 164 | 160 | 166 | 5891 | 245 | 6071 | 243 |
| 12 | 180 | 201 | 225 | 246 | 266 | 278 | 281 | 278 | 273 | 267 | 266 | 266 | 268 | 272 | 276 | 277 | 271 | 258 | 242 | 220 | 196 | 177 | 166 | 164 | 5814 | 242 | 5989 | 240 |
| 13 | 175 | 195 | 220 | 248 | 273 | 292 | 301 | 301 | 295 | 288 | 282 | 281 | 285 | 289 | 296 | 304 | 305 | 297 | 285 | 264 | 234 | 207 | 186 | 176 | 6279 | 262 | 6459 | 258 |
| 14 | 180 | 196 | 221 | 251 | 279 | 302 | 316 | 320 | 316 | 306 | 297 | 292 | 293 | 300 | 311 | 319 | 327 | 326 | 317 | 298 | 269 | 238 | 209 | 189 | 6672 | 278 | 6857 | 274 |
| 15 | 185 | 192 | 211 | 238 | 264 | 288 | 305 | 311 | 309 | 298 | 284 | 273 | 269 | 272 | 282 | 294 | 305 | 310 | 309 | 295 | 270 | 240 | 208 | 182 | 6394 | 266 | 6563 | 263 |
| 16 | 169 | 170 | 184 | 207 | 235 | 261 | 278 | 289 | 291 | 281 | 268 | 258 | 248 | 247 | 259 | 274 | 289 | 299 | 304 | 299 | 281 | 255 | 226 | 199 | 6071 | 253 | 6251 | 250 |
| 17 | 180 | 174 | 182 | 202 | 228 | 254 | 275 | 288 | 290 | 283 | 272 | 259 | 248 | 244 | 248 | 263 | 282 | 295 | 306 | 309 | 298 | 279 | 254 | 228 | 6141 | 256 | 6349 | 254 |
| 18 | 208 | 197 | 201 | 214 | 235 | 261 | 281 | 294 | 300 | 295 | 284 | 271 | 256 | 247 | 246 | 254 | 271 | 287 | 299 | 306 | 300 | 286 | 266 | 242 | 6301 | 263 | 6523 | 261 |
| 19 | 222 | 208 | 203 | 212 | 230 | 250 | 268 | 282 | 289 | 287 | 276 | 263 | 250 | 238 | 232 | 237 | 249 | 264 | 279 | 288 | 289 | 283 | 267 | 248 | 6114 | 255 | 6346 | 254 |
| 20 | 232 | 218 | 211 | 214 | 226 | 243 | 258 | 271 | 278 | 277 | 268 | 255 | 240 | 228 | 218 | 218 | 227 | 239 | 255 | 267 | 271 | 270 | 262 | 249 | 5895 | 246 | 6132 | 245 |
| 21 | 237 | 227 | 222 | 224 | 231 | 246 | 260 | 272 | 279 | 279 | 276 | 264 | 249 | 237 | 227 | 222 | 225 | 234 | 246 | 259 | 267 | 269 | 267 | 264 | 5983 | 249 | 6241 | 250 |
| 22 | 258 | 252 | 252 | 255 | 261 | 273 | 285 | 297 | 303 | 305 | 305 | 298 | 285 | 276 | 266 | 258 | 255 | 256 | 262 | 271 | 275 | 277 | 275 | 273 | 6573 | 274 | 6843 | 274 |
| 23 | 270 | 266 | 266 | 266 | 268 | 275 | 280 | 285 | 288 | 287 | 285 | 279 | 268 | 256 | 244 | 234 | 227 | 221 | 221 | 224 | 226 | 230 | 230 | 232 | 6128 | 255 | 6363 | 255 |
| 24 | 235 | 237 | 242 | 247 | 251 | 255 | 259 | 266 | 267 | 267 | 267 | 262 | 256 | 248 | 238 | 228 | 220 | 213 | 210 | 209 | 208 | 211 | 214 | 220 | 5730 | 239 | 5959 | 238 |
| 25 | 229 | 237 | 247 | 257 | 266 | 270 | 275 | 275 | 275 | 275 | 273 | 271 | 268 | 260 | 255 | 248 | 237 | 228 | 218 | 209 | 204 | 200 | 200 | 207 | 5884 | 245 | 6100 | 244 |
| 26 | 216 | 230 | 244 | 256 | 266 | 274 | 275 | 273 | 271 | 266 | 262 | 260 | 258 | 255 | 251 | 246 | 238 | 224 | 211 | 197 | 183 | 172 | 169 | 173 | 5670 | 236 | 5854 | 234 |
| 27 | 184 | 199 | 218 | 238 | 253 | 263 | 267 | 264 | 260 | 255 | 249 | 248 | 249 | 250 | 251 | 251 | 246 | 234 | 220 | 201 | 180 | 166 | 157 | 156 | 5459 | 227 | 5626 | 225 |
| 28 | 167 | 185 | 209 | 234 | 255 | 272 | 279 | 278 | 275 | 268 | 263 | 261 | 262 | 267 | 274 | 278 | 278 | 271 | 258 | 238 | 213 | 189 | 174 | 166 | 5814 | 242 | 5985 | 239 |
| 29 | 171 | 188 | 212 | 238 | 263 | 283 | 293 | 294 | 287 | 276 | 266 | 259 | 259 | 263 | 272 | 282 | 287 | 281 | 272 | 254 | 223 | 193 | 169 | 153 | 5938 | 247 | 6090 | 244 |
| 30 | 152 | 163 | 187 | 215 | 241 | 266 | 281 | 284 | 279 | 267 | 254 | 246 | 243 | 246 | 258 | 273 | 283 | 286 | 283 | 268 | 240 | 207 | 177 | 155 | 5754 | 240 | 5900 | 236 |
| 31 | 146 | 150 | 168 | 195 | 223 | 251 | 268 | 275 | 273 | 261 | 246 | 234 | 225 | 227 | 241 | 257 | 275 | 289 | 293 | 285 | 265 | 235 | 203 | 175 | 5660 | 236 | 5818 | 233 |
| 1 | 158 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 253.0 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Aug. 1–Aug. 31, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 158 | 154 | 166 | 191 | 218 | 246 | 265 | 276 | 277 | 267 | 252 | 238 | 227 | 225 | 235 | 254 | 274 | 291 | 304 | 305 | 294 | 272 | 240 | 210 | 5839 | 243 | 6028 | 241 |
| 2 | 189 | 177 | 179 | 197 | 222 | 246 | 264 | 277 | 279 | 267 | 251 | 235 | 218 | 208 | 209 | 224 | 244 | 263 | 283 | 293 | 291 | 279 | 255 | 229 | 5779 | 241 | 5986 | 239 |
| 3 | 207 | 192 | 189 | 198 | 218 | 239 | 259 | 272 | 276 | 271 | 258 | 239 | 221 | 207 | 203 | 209 | 227 | 247 | 268 | 285 | 292 | 288 | 275 | 258 | 5798 | 242 | 6037 | 241 |
| 4 | 239 | 223 | 218 | 221 | 234 | 252 | 270 | 282 | 287 | 285 | 275 | 257 | 236 | 219 | 208 | 205 | 214 | 231 | 250 | 267 | 279 | 284 | 281 | 271 | 5988 | 250 | 6248 | 250 |
| 5 | 260 | 247 | 240 | 240 | 247 | 259 | 271 | 283 | 287 | 286 | 279 | 262 | 244 | 225 | 209 | 199 | 198 | 206 | 219 | 233 | 245 | 253 | 257 | 258 | 5907 | 246 | 6161 | 246 |
| 6 | 254 | 251 | 248 | 247 | 252 | 262 | 270 | 278 | 285 | 283 | 279 | 270 | 252 | 236 | 221 | 206 | 197 | 194 | 200 | 208 | 214 | 223 | 233 | 239 | 5802 | 242 | 6044 | 242 |
| 7 | 242 | 247 | 253 | 255 | 257 | 264 | 270 | 275 | 280 | 279 | 277 | 272 | 262 | 250 | 239 | 226 | 215 | 205 | 203 | 203 | 204 | 208 | 215 | 224 | 5825 | 243 | 6060 | 242 |
| 8 | 235 | 245 | 257 | 266 | 271 | 275 | 278 | 279 | 280 | 279 | 277 | 275 | 271 | 266 | 258 | 247 | 235 | 221 | 208 | 199 | 192 | 190 | 192 | 201 | 5897 | 246 | 6112 | 244 |
| 9 | 215 | 230 | 249 | 265 | 276 | 283 | 282 | 281 | 278 | 274 | 273 | 272 | 272 | 271 | 268 | 264 | 257 | 243 | 228 | 212 | 196 | 185 | 182 | 186 | 5942 | 248 | 6142 | 246 |
| 10 | 200 | 220 | 245 | 268 | 286 | 298 | 301 | 299 | 295 | 287 | 283 | 284 | 286 | 290 | 293 | 294 | 292 | 281 | 265 | 245 | 221 | 202 | 189 | 187 | 6311 | 263 | 6509 | 260 |
| 11 | 198 | 217 | 241 | 268 | 291 | 308 | 314 | 312 | 303 | 291 | 283 | 279 | 279 | 287 | 296 | 303 | 304 | 298 | 284 | 259 | 227 | 196 | 174 | 162 | 6374 | 266 | 6536 | 261 |
| 12 | 162 | 175 | 197 | 221 | 245 | 264 | 272 | 268 | 258 | 245 | 234 | 228 | 227 | 235 | 250 | 262 | 273 | 275 | 267 | 252 | 227 | 196 | 171 | 156 | 5560 | 232 | 5713 | 229 |
| 13 | 153 | 163 | 186 | 213 | 239 | 261 | 274 | 274 | 265 | 251 | 238 | 227 | 224 | 234 | 249 | 266 | 283 | 291 | 290 | 279 | 256 | 226 | 197 | 178 | 5717 | 238 | 5887 | 235 |
| 14 | 170 | 173 | 193 | 219 | 244 | 267 | 280 | 282 | 274 | 258 | 242 | 227 | 219 | 224 | 239 | 257 | 276 | 291 | 296 | 292 | 273 | 244 | 216 | 192 | 5848 | 244 | 6025 | 241 |
| 15 | 177 | 176 | 188 | 210 | 236 | 258 | 272 | 278 | 271 | 256 | 238 | 220 | 208 | 209 | 220 | 240 | 263 | 279 | 289 | 293 | 280 | 257 | 231 | 208 | 5757 | 240 | 5949 | 238 |
| 16 | 192 | 186 | 193 | 211 | 234 | 258 | 274 | 280 | 277 | 264 | 246 | 230 | 216 | 211 | 219 | 237 | 260 | 281 | 296 | 305 | 301 | 285 | 265 | 243 | 5964 | 249 | 6189 | 248 |
| 17 | 225 | 218 | 221 | 232 | 252 | 273 | 286 | 293 | 291 | 277 | 257 | 238 | 218 | 208 | 208 | 217 | 237 | 257 | 273 | 283 | 283 | 273 | 256 | 236 | 6012 | 251 | 6235 | 249 |
| 18 | 223 | 214 | 212 | 222 | 239 | 257 | 274 | 281 | 279 | 271 | 255 | 233 | 215 | 205 | 199 | 203 | 219 | 238 | 254 | 268 | 272 | 266 | 254 | 240 | 5793 | 241 | 6021 | 241 |
| 19 | 228 | 219 | 216 | 224 | 237 | 251 | 267 | 275 | 274 | 269 | 257 | 237 | 219 | 208 | 200 | 200 | 213 | 229 | 243 | 257 | 265 | 264 | 259 | 253 | 5764 | 240 | 6008 | 240 |
| 20 | 244 | 238 | 238 | 242 | 251 | 264 | 276 | 284 | 284 | 279 | 268 | 250 | 230 | 216 | 206 | 200 | 204 | 214 | 224 | 234 | 243 | 245 | 244 | 241 | 5819 | 242 | 6056 | 242 |
| 21 | 237 | 235 | 237 | 240 | 247 | 258 | 268 | 271 | 273 | 271 | 262 | 250 | 234 | 219 | 211 | 204 | 203 | 208 | 213 | 222 | 231 | 235 | 239 | 244 | 5712 | 238 | 5957 | 238 |
| 22 | 245 | 250 | 257 | 263 | 272 | 282 | 289 | 293 | 295 | 294 | 287 | 279 | 267 | 255 | 244 | 236 | 230 | 224 | 225 | 228 | 229 | 232 | 236 | 241 | 6153 | 256 | 6398 | 256 |
| 23 | 245 | 253 | 264 | 272 | 280 | 287 | 289 | 291 | 291 | 288 | 284 | 278 | 271 | 263 | 255 | 249 | 239 | 229 | 223 | 219 | 214 | 210 | 212 | 219 | 6125 | 255 | 6352 | 254 |
| 24 | 227 | 239 | 254 | 266 | 273 | 280 | 282 | 280 | 277 | 273 | 268 | 264 | 260 | 256 | 252 | 247 | 240 | 227 | 215 | 204 | 193 | 185 | 183 | 189 | 5834 | 243 | 6035 | 241 |
| 25 | 201 | 218 | 238 | 258 | 271 | 281 | 285 | 283 | 277 | 272 | 267 | 263 | 265 | 268 | 272 | 271 | 267 | 259 | 244 | 227 | 210 | 194 | 186 | 190 | 5967 | 249 | 6167 | 247 |
| 26 | 200 | 219 | 243 | 265 | 282 | 296 | 298 | 293 | 282 | 272 | 264 | 258 | 259 | 267 | 275 | 281 | 284 | 276 | 262 | 243 | 217 | 195 | 184 | 180 | 6095 | 254 | 6285 | 251 |
| 27 | 190 | 210 | 235 | 264 | 288 | 304 | 310 | 304 | 292 | 278 | 265 | 259 | 261 | 269 | 282 | 296 | 304 | 302 | 290 | 270 | 241 | 212 | 190 | 177 | 6293 | 262 | 6472 | 259 |
| 28 | 179 | 195 | 220 | 247 | 273 | 293 | 299 | 294 | 283 | 266 | 250 | 240 | 239 | 252 | 270 | 289 | 305 | 312 | 309 | 293 | 266 | 234 | 205 | 185 | 6198 | 258 | 6376 | 255 |
| 29 | 178 | 188 | 209 | 237 | 264 | 285 | 296 | 295 | 281 | 263 | 244 | 227 | 221 | 229 | 248 | 271 | 293 | 308 | 313 | 307 | 285 | 251 | 221 | 196 | 6110 | 255 | 6288 | 252 |
| 30 | 178 | 179 | 196 | 220 | 243 | 265 | 279 | 277 | 266 | 247 | 223 | 201 | 189 | 191 | 208 | 232 | 260 | 284 | 298 | 303 | 292 | 267 | 239 | 213 | 5750 | 240 | 5945 | 238 |
| 31 | 195 | 190 | 199 | 219 | 243 | 264 | 280 | 283 | 273 | 255 | 231 | 206 | 189 | 183 | 191 | 214 | 242 | 270 | 293 | 306 | 307 | 295 | 275 | 252 | 5855 | 244 | 6090 | 244 |
| 1 | 235 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 247.0 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Sep. 1–Sep. 30, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 235 | 226 | 230 | 245 | 266 | 287 | 302 | 308 | 302 | 285 | 261 | 234 | 211 | 197 | 195 | 208 | 231 | 256 | 277 | 297 | 306 | 301 | 289 | 274 | 6223 | 259 | 6479 | 259 |
| 2 | 256 | 247 | 246 | 251 | 267 | 286 | 298 | 303 | 301 | 290 | 267 | 240 | 218 | 199 | 187 | 191 | 206 | 224 | 243 | 263 | 277 | 280 | 277 | 270 | 6087 | 254 | 6347 | 254 |
| 3 | 260 | 253 | 252 | 254 | 265 | 280 | 291 | 296 | 295 | 289 | 273 | 251 | 231 | 212 | 196 | 191 | 195 | 205 | 220 | 236 | 250 | 258 | 263 | 265 | 5981 | 249 | 6246 | 250 |
| 4 | 265 | 266 | 268 | 272 | 280 | 290 | 300 | 305 | 307 | 304 | 294 | 280 | 262 | 246 | 232 | 222 | 216 | 217 | 222 | 231 | 241 | 247 | 256 | 265 | 6288 | 262 | 6559 | 262 |
| 5 | 271 | 279 | 287 | 293 | 297 | 304 | 311 | 315 | 315 | 312 | 308 | 299 | 286 | 276 | 265 | 251 | 241 | 234 | 228 | 227 | 231 | 234 | 239 | 249 | 6552 | 273 | 6813 | 273 |
| 6 | 261 | 273 | 285 | 297 | 301 | 306 | 309 | 308 | 306 | 303 | 301 | 296 | 291 | 287 | 281 | 271 | 261 | 249 | 235 | 226 | 220 | 214 | 215 | 224 | 6520 | 272 | 6755 | 270 |
| 7 | 235 | 249 | 267 | 280 | 288 | 292 | 290 | 285 | 280 | 274 | 271 | 270 | 270 | 270 | 270 | 266 | 259 | 246 | 231 | 214 | 199 | 185 | 182 | 187 | 6060 | 253 | 6258 | 250 |
| 8 | 198 | 216 | 237 | 254 | 268 | 275 | 273 | 266 | 258 | 250 | 246 | 245 | 249 | 256 | 263 | 270 | 270 | 260 | 247 | 229 | 207 | 191 | 181 | 180 | 5789 | 241 | 5980 | 239 |
| 9 | 191 | 210 | 233 | 255 | 273 | 284 | 284 | 276 | 265 | 253 | 247 | 245 | 250 | 263 | 276 | 286 | 293 | 291 | 279 | 260 | 236 | 213 | 197 | 191 | 6051 | 252 | 6246 | 250 |
| 10 | 195 | 212 | 235 | 256 | 276 | 288 | 287 | 277 | 262 | 247 | 234 | 227 | 232 | 245 | 261 | 277 | 289 | 292 | 285 | 269 | 244 | 217 | 196 | 185 | 5988 | 250 | 6173 | 247 |
| 11 | 185 | 200 | 220 | 243 | 264 | 278 | 282 | 274 | 256 | 237 | 222 | 213 | 214 | 227 | 246 | 269 | 286 | 295 | 295 | 284 | 261 | 235 | 210 | 195 | 5891 | 245 | 6081 | 243 |
| 12 | 190 | 200 | 220 | 244 | 265 | 279 | 284 | 278 | 261 | 238 | 220 | 208 | 202 | 214 | 236 | 259 | 281 | 296 | 301 | 296 | 277 | 252 | 228 | 209 | 5938 | 247 | 6139 | 246 |
| 13 | 201 | 206 | 223 | 245 | 266 | 281 | 287 | 282 | 265 | 241 | 219 | 202 | 193 | 196 | 215 | 240 | 263 | 283 | 293 | 290 | 278 | 256 | 231 | 213 | 5869 | 245 | 6071 | 243 |
| 14 | 202 | 202 | 215 | 236 | 257 | 271 | 280 | 278 | 261 | 240 | 217 | 195 | 183 | 184 | 197 | 222 | 248 | 270 | 285 | 290 | 285 | 268 | 246 | 230 | 5762 | 240 | 5981 | 239 |
| 15 | 219 | 215 | 223 | 242 | 262 | 277 | 287 | 287 | 274 | 253 | 229 | 208 | 190 | 185 | 194 | 212 | 236 | 260 | 277 | 287 | 286 | 275 | 258 | 243 | 5879 | 245 | 6110 | 244 |
| 16 | 231 | 227 | 232 | 244 | 263 | 279 | 286 | 286 | 277 | 259 | 235 | 212 | 194 | 184 | 186 | 200 | 220 | 241 | 259 | 273 | 277 | 272 | 261 | 250 | 5848 | 244 | 6090 | 244 |
| 17 | 242 | 238 | 241 | 251 | 268 | 283 | 294 | 296 | 290 | 277 | 257 | 233 | 214 | 202 | 199 | 206 | 221 | 237 | 255 | 268 | 273 | 273 | 265 | 255 | 6038 | 252 | 6287 | 251 |
| 18 | 249 | 247 | 247 | 254 | 268 | 280 | 288 | 290 | 285 | 275 | 258 | 235 | 216 | 202 | 195 | 196 | 203 | 216 | 231 | 243 | 250 | 252 | 251 | 248 | 5879 | 245 | 6124 | 245 |
| 19 | 245 | 244 | 249 | 254 | 262 | 275 | 281 | 282 | 281 | 273 | 259 | 242 | 224 | 211 | 204 | 200 | 202 | 209 | 219 | 228 | 237 | 242 | 245 | 247 | 5815 | 242 | 6064 | 243 |
| 20 | 249 | 253 | 258 | 264 | 273 | 281 | 285 | 287 | 284 | 278 | 271 | 259 | 244 | 233 | 224 | 220 | 216 | 216 | 221 | 226 | 230 | 236 | 241 | 248 | 5997 | 250 | 6253 | 250 |
| 21 | 256 | 263 | 273 | 281 | 288 | 293 | 296 | 296 | 293 | 289 | 284 | 276 | 266 | 259 | 253 | 244 | 236 | 232 | 229 | 225 | 225 | 227 | 230 | 238 | 6252 | 261 | 6501 | 260 |
| 22 | 249 | 260 | 272 | 282 | 290 | 293 | 292 | 287 | 281 | 276 | 272 | 267 | 262 | 260 | 257 | 254 | 246 | 235 | 225 | 215 | 208 | 206 | 207 | 217 | 6113 | 255 | 6346 | 254 |
| 23 | 233 | 251 | 269 | 284 | 296 | 301 | 299 | 294 | 285 | 280 | 276 | 276 | 279 | 285 | 291 | 293 | 290 | 281 | 265 | 251 | 239 | 223 | 217 | 221 | 6479 | 270 | 6713 | 269 |
| 24 | 234 | 253 | 274 | 291 | 305 | 309 | 303 | 292 | 280 | 267 | 260 | 259 | 263 | 275 | 287 | 293 | 294 | 287 | 269 | 248 | 225 | 204 | 193 | 192 | 6357 | 265 | 6559 | 262 |
| 25 | 202 | 221 | 244 | 265 | 281 | 288 | 284 | 270 | 254 | 239 | 228 | 226 | 233 | 248 | 268 | 286 | 297 | 297 | 287 | 267 | 241 | 216 | 198 | 191 | 6031 | 251 | 6228 | 249 |
| 26 | 197 | 215 | 239 | 264 | 284 | 294 | 291 | 278 | 256 | 234 | 218 | 208 | 211 | 228 | 252 | 277 | 296 | 304 | 301 | 283 | 255 | 226 | 199 | 184 | 5994 | 250 | 6176 | 247 |
| 27 | 182 | 195 | 216 | 240 | 260 | 272 | 272 | 257 | 233 | 209 | 186 | 173 | 175 | 189 | 218 | 250 | 278 | 299 | 306 | 299 | 279 | 251 | 225 | 206 | 5670 | 236 | 5866 | 235 |
| 28 | 196 | 202 | 221 | 243 | 262 | 275 | 278 | 266 | 242 | 214 | 186 | 165 | 157 | 166 | 190 | 221 | 254 | 282 | 298 | 301 | 291 | 269 | 245 | 225 | 5649 | 235 | 5861 | 234 |
| 29 | 212 | 213 | 227 | 247 | 267 | 282 | 287 | 280 | 259 | 231 | 202 | 175 | 158 | 157 | 172 | 199 | 231 | 261 | 284 | 298 | 299 | 287 | 270 | 254 | 5752 | 240 | 5991 | 240 |
| 30 | 239 | 234 | 244 | 259 | 278 | 292 | 298 | 294 | 279 | 254 | 224 | 192 | 169 | 158 | 161 | 179 | 206 | 234 | 258 | 277 | 288 | 286 | 275 | 265 | 5843 | 243 | 6097 | 244 |
| 1 | 254 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 250.8 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Oct. 1–Oct. 31, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 254 | 247 | 250 | 262 | 278 | 291 | 300 | 299 | 289 | 272 | 246 | 216 | 192 | 175 | 168 | 176 | 191 | 212 | 235 | 253 | 267 | 273 | 269 | 265 | 5880 | 245 | 6142 | 246 |
| 2 | 262 | 257 | 257 | 264 | 276 | 288 | 297 | 297 | 293 | 282 | 263 | 237 | 214 | 194 | 180 | 176 | 182 | 192 | 206 | 221 | 234 | 243 | 248 | 248 | 5811 | 242 | 6059 | 242 |
| 3 | 248 | 251 | 252 | 253 | 262 | 271 | 277 | 279 | 277 | 271 | 259 | 241 | 223 | 208 | 194 | 185 | 183 | 184 | 191 | 199 | 208 | 216 | 225 | 233 | 5590 | 233 | 5828 | 233 |
| 4 | 238 | 245 | 252 | 256 | 261 | 267 | 271 | 273 | 272 | 270 | 264 | 256 | 246 | 237 | 230 | 222 | 214 | 208 | 207 | 208 | 212 | 217 | 224 | 235 | 5785 | 241 | 6031 | 241 |
| 5 | 246 | 258 | 267 | 274 | 280 | 282 | 282 | 281 | 279 | 277 | 276 | 273 | 270 | 267 | 264 | 260 | 252 | 242 | 233 | 225 | 221 | 219 | 222 | 231 | 6181 | 258 | 6424 | 257 |
| 6 | 243 | 255 | 268 | 277 | 281 | 280 | 274 | 267 | 260 | 256 | 253 | 253 | 254 | 257 | 262 | 262 | 256 | 246 | 234 | 221 | 210 | 202 | 200 | 207 | 5978 | 249 | 6197 | 248 |
| 7 | 219 | 234 | 251 | 264 | 271 | 271 | 264 | 253 | 244 | 237 | 233 | 235 | 242 | 253 | 264 | 272 | 273 | 267 | 256 | 239 | 224 | 213 | 207 | 211 | 5897 | 246 | 6119 | 245 |
| 8 | 222 | 238 | 257 | 272 | 281 | 284 | 277 | 263 | 250 | 240 | 235 | 236 | 246 | 261 | 277 | 291 | 299 | 296 | 286 | 269 | 251 | 233 | 223 | 222 | 6209 | 259 | 6438 | 258 |
| 9 | 229 | 245 | 263 | 278 | 289 | 290 | 280 | 264 | 245 | 229 | 219 | 217 | 226 | 243 | 263 | 282 | 293 | 295 | 288 | 272 | 253 | 232 | 216 | 213 | 6124 | 255 | 6340 | 254 |
| 10 | 216 | 229 | 249 | 265 | 275 | 281 | 272 | 253 | 234 | 215 | 199 | 194 | 202 | 219 | 242 | 266 | 284 | 294 | 292 | 280 | 262 | 241 | 224 | 217 | 5905 | 246 | 6123 | 245 |
| 11 | 218 | 230 | 250 | 268 | 283 | 289 | 283 | 266 | 245 | 223 | 205 | 196 | 199 | 215 | 241 | 267 | 289 | 305 | 309 | 301 | 286 | 265 | 247 | 236 | 6116 | 255 | 6350 | 254 |
| 12 | 234 | 242 | 259 | 277 | 291 | 297 | 292 | 276 | 251 | 225 | 203 | 187 | 184 | 194 | 217 | 245 | 269 | 287 | 297 | 295 | 282 | 264 | 247 | 234 | 6049 | 252 | 6277 | 251 |
| 13 | 228 | 233 | 250 | 268 | 282 | 291 | 289 | 275 | 255 | 227 | 202 | 185 | 176 | 182 | 202 | 230 | 257 | 279 | 292 | 296 | 289 | 273 | 258 | 246 | 5965 | 249 | 6203 | 248 |
| 14 | 238 | 239 | 252 | 269 | 285 | 296 | 296 | 286 | 268 | 242 | 216 | 194 | 181 | 183 | 199 | 224 | 252 | 278 | 296 | 307 | 308 | 296 | 284 | 276 | 6165 | 257 | 6434 | 257 |
| 15 | 269 | 266 | 277 | 292 | 308 | 320 | 321 | 313 | 298 | 274 | 245 | 221 | 202 | 195 | 201 | 217 | 239 | 261 | 279 | 289 | 292 | 286 | 275 | 265 | 6405 | 267 | 6662 | 266 |
| 16 | 257 | 253 | 258 | 269 | 282 | 292 | 295 | 289 | 278 | 259 | 232 | 207 | 189 | 179 | 181 | 194 | 212 | 233 | 253 | 269 | 277 | 279 | 274 | 269 | 5980 | 249 | 6246 | 250 |
| 17 | 266 | 265 | 269 | 280 | 292 | 303 | 309 | 308 | 300 | 286 | 265 | 242 | 223 | 210 | 206 | 212 | 224 | 241 | 256 | 270 | 279 | 283 | 282 | 276 | 6347 | 264 | 6621 | 265 |
| 18 | 274 | 274 | 274 | 280 | 289 | 297 | 300 | 299 | 293 | 282 | 265 | 244 | 225 | 212 | 203 | 202 | 208 | 216 | 228 | 240 | 248 | 254 | 259 | 259 | 6125 | 255 | 6386 | 255 |
| 19 | 261 | 263 | 266 | 271 | 277 | 284 | 287 | 285 | 282 | 275 | 263 | 251 | 237 | 224 | 217 | 212 | 211 | 213 | 219 | 227 | 233 | 240 | 249 | 254 | 6001 | 250 | 6260 | 250 |
| 20 | 259 | 266 | 272 | 276 | 279 | 281 | 281 | 279 | 276 | 270 | 263 | 255 | 245 | 237 | 230 | 224 | 219 | 215 | 214 | 215 | 216 | 223 | 231 | 238 | 5964 | 249 | 6212 | 248 |
| 21 | 248 | 257 | 265 | 271 | 274 | 273 | 270 | 264 | 260 | 257 | 252 | 252 | 252 | 252 | 252 | 250 | 244 | 234 | 229 | 223 | 218 | 221 | 227 | 236 | 5981 | 249 | 6231 | 249 |
| 22 | 250 | 264 | 274 | 284 | 287 | 285 | 278 | 270 | 262 | 257 | 257 | 260 | 265 | 273 | 281 | 284 | 279 | 268 | 256 | 243 | 231 | 227 | 227 | 235 | 6297 | 262 | 6545 | 262 |
| 23 | 248 | 263 | 279 | 288 | 292 | 288 | 274 | 261 | 248 | 236 | 233 | 237 | 246 | 262 | 278 | 286 | 288 | 281 | 265 | 246 | 228 | 213 | 207 | 210 | 6157 | 257 | 6378 | 255 |
| 24 | 221 | 236 | 253 | 264 | 270 | 265 | 249 | 229 | 209 | 194 | 185 | 189 | 202 | 222 | 246 | 267 | 277 | 279 | 268 | 249 | 227 | 208 | 196 | 195 | 5600 | 233 | 5804 | 232 |
| 25 | 204 | 220 | 239 | 255 | 263 | 264 | 250 | 227 | 205 | 184 | 170 | 171 | 185 | 210 | 241 | 271 | 294 | 306 | 304 | 290 | 269 | 248 | 230 | 221 | 5721 | 238 | 5948 | 238 |
| 26 | 227 | 241 | 257 | 273 | 284 | 284 | 271 | 246 | 216 | 187 | 164 | 154 | 158 | 180 | 210 | 243 | 273 | 293 | 301 | 294 | 277 | 256 | 234 | 220 | 5743 | 239 | 5962 | 238 |
| 27 | 219 | 227 | 243 | 259 | 271 | 274 | 265 | 243 | 214 | 182 | 153 | 135 | 130 | 145 | 173 | 206 | 240 | 269 | 289 | 294 | 287 | 272 | 255 | 241 | 5486 | 229 | 5720 | 229 |
| 28 | 234 | 238 | 253 | 270 | 284 | 291 | 287 | 271 | 244 | 210 | 178 | 151 | 136 | 138 | 158 | 186 | 218 | 247 | 272 | 286 | 286 | 279 | 268 | 254 | 5639 | 235 | 5886 | 235 |
| 29 | 247 | 246 | 255 | 272 | 288 | 295 | 297 | 287 | 266 | 237 | 205 | 173 | 151 | 141 | 148 | 170 | 195 | 221 | 247 | 265 | 273 | 274 | 268 | 258 | 5679 | 237 | 5931 | 237 |
| 30 | 252 | 249 | 253 | 266 | 281 | 291 | 294 | 291 | 278 | 255 | 225 | 196 | 172 | 156 | 152 | 161 | 178 | 198 | 219 | 239 | 251 | 257 | 257 | 253 | 5624 | 234 | 5874 | 235 |
| 31 | 250 | 245 | 245 | 254 | 265 | 277 | 282 | 281 | 275 | 261 | 241 | 217 | 194 | 176 | 165 | 163 | 171 | 183 | 200 | 216 | 228 | 237 | 241 | 241 | 5508 | 230 | 5751 | 230 |
| 1 | 243 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 247.2 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Nov. 1–Nov. 30, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 243 | 243 | 243 | 244 | 251 | 259 | 266 | 267 | 264 | 257 | 246 | 229 | 212 | 198 | 185 | 177 | 177 | 181 | 189 | 200 | 208 | 218 | 225 | 230 | 5412 | 226 | 5646 | 226 |
| 2 | 234 | 236 | 238 | 238 | 240 | 245 | 248 | 250 | 250 | 248 | 244 | 236 | 226 | 219 | 212 | 203 | 200 | 199 | 199 | 204 | 209 | 215 | 223 | 231 | 5447 | 227 | 5685 | 227 |
| 3 | 238 | 244 | 248 | 249 | 248 | 247 | 247 | 246 | 246 | 245 | 244 | 241 | 241 | 239 | 234 | 229 | 223 | 217 | 215 | 216 | 219 | 226 | 233 | 5680 | 237 | 5923 | 237 | |
| 4 | 243 | 250 | 255 | 257 | 255 | 250 | 243 | 239 | 236 | 234 | 234 | 238 | 242 | 248 | 253 | 255 | 252 | 244 | 237 | 232 | 225 | 225 | 229 | 234 | 5810 | 242 | 6056 | 242 |
| 5 | 246 | 255 | 261 | 267 | 265 | 258 | 248 | 237 | 230 | 225 | 224 | 229 | 237 | 248 | 260 | 265 | 267 | 262 | 252 | 242 | 233 | 228 | 228 | 233 | 5900 | 246 | 6143 | 246 |
| 6 | 243 | 253 | 264 | 270 | 270 | 265 | 253 | 238 | 226 | 217 | 215 | 220 | 230 | 247 | 263 | 276 | 283 | 281 | 273 | 261 | 248 | 238 | 235 | 237 | 6006 | 250 | 6252 | 250 |
| 7 | 246 | 257 | 269 | 276 | 276 | 270 | 255 | 236 | 219 | 207 | 199 | 201 | 214 | 232 | 251 | 270 | 283 | 286 | 281 | 272 | 258 | 245 | 238 | 238 | 5979 | 249 | 6226 | 249 |
| 8 | 247 | 259 | 271 | 280 | 283 | 279 | 266 | 245 | 223 | 207 | 194 | 195 | 205 | 224 | 248 | 272 | 289 | 296 | 296 | 288 | 274 | 260 | 250 | 245 | 6096 | 254 | 6346 | 254 |
| 9 | 250 | 262 | 275 | 285 | 290 | 287 | 273 | 251 | 227 | 204 | 187 | 182 | 190 | 210 | 235 | 261 | 284 | 296 | 301 | 296 | 283 | 270 | 257 | 250 | 6106 | 254 | 6360 | 254 |
| 10 | 254 | 263 | 278 | 290 | 297 | 297 | 286 | 265 | 239 | 214 | 193 | 181 | 183 | 199 | 224 | 251 | 276 | 293 | 303 | 302 | 292 | 278 | 266 | 256 | 6180 | 258 | 6435 | 257 |
| 11 | 255 | 262 | 276 | 288 | 297 | 300 | 291 | 273 | 248 | 219 | 194 | 178 | 173 | 183 | 205 | 233 | 259 | 281 | 294 | 297 | 291 | 280 | 269 | 259 | 6105 | 254 | 6359 | 254 |
| 12 | 254 | 259 | 270 | 283 | 295 | 299 | 293 | 279 | 256 | 226 | 198 | 178 | 167 | 170 | 188 | 212 | 239 | 262 | 280 | 290 | 289 | 281 | 272 | 261 | 6001 | 250 | 6257 | 250 |
| 13 | 256 | 257 | 265 | 278 | 290 | 297 | 296 | 285 | 266 | 239 | 211 | 187 | 171 | 168 | 179 | 198 | 223 | 248 | 267 | 281 | 286 | 281 | 273 | 266 | 5968 | 249 | 6230 | 249 |
| 14 | 262 | 260 | 265 | 279 | 290 | 298 | 301 | 294 | 278 | 256 | 229 | 203 | 184 | 176 | 179 | 191 | 213 | 234 | 253 | 268 | 276 | 276 | 271 | 265 | 6001 | 250 | 6263 | 251 |
| 15 | 262 | 259 | 261 | 270 | 280 | 289 | 294 | 290 | 280 | 263 | 238 | 215 | 195 | 182 | 180 | 187 | 202 | 220 | 237 | 253 | 263 | 268 | 266 | 263 | 5917 | 247 | 6178 | 247 |
| 16 | 261 | 257 | 256 | 262 | 272 | 279 | 284 | 284 | 281 | 268 | 250 | 232 | 212 | 198 | 193 | 193 | 201 | 214 | 229 | 243 | 254 | 264 | 267 | 268 | 5922 | 247 | 6190 | 248 |
| 17 | 268 | 268 | 268 | 269 | 273 | 278 | 283 | 284 | 281 | 275 | 266 | 252 | 237 | 224 | 215 | 210 | 213 | 217 | 226 | 237 | 247 | 256 | 263 | 266 | 6076 | 253 | 6344 | 254 |
| 18 | 268 | 269 | 269 | 270 | 270 | 270 | 270 | 270 | 270 | 266 | 261 | 256 | 247 | 239 | 232 | 225 | 221 | 218 | 220 | 226 | 229 | 236 | 246 | 251 | 5999 | 250 | 6256 | 250 |
| 19 | 257 | 261 | 261 | 259 | 255 | 251 | 247 | 245 | 244 | 243 | 245 | 247 | 247 | 248 | 245 | 242 | 237 | 230 | 225 | 223 | 225 | 229 | 235 | 245 | 5846 | 244 | 6100 | 244 |
| 20 | 254 | 260 | 263 | 262 | 256 | 250 | 240 | 233 | 229 | 228 | 233 | 243 | 251 | 261 | 270 | 273 | 271 | 264 | 253 | 248 | 244 | 243 | 247 | 256 | 6032 | 251 | 6298 | 252 |
| 21 | 266 | 275 | 280 | 279 | 273 | 263 | 246 | 232 | 222 | 217 | 218 | 227 | 242 | 260 | 276 | 287 | 290 | 285 | 273 | 262 | 253 | 246 | 244 | 251 | 6167 | 257 | 6428 | 257 |
| 22 | 261 | 270 | 280 | 284 | 279 | 268 | 250 | 230 | 214 | 204 | 203 | 213 | 232 | 259 | 284 | 305 | 319 | 321 | 313 | 301 | 286 | 274 | 267 | 268 | 6385 | 266 | 6661 | 266 |
| 23 | 276 | 286 | 295 | 300 | 298 | 286 | 265 | 239 | 213 | 193 | 183 | 185 | 200 | 226 | 255 | 284 | 306 | 318 | 317 | 308 | 294 | 277 | 266 | 264 | 6334 | 264 | 6603 | 264 |
| 24 | 269 | 279 | 290 | 299 | 301 | 294 | 276 | 249 | 219 | 190 | 171 | 164 | 172 | 196 | 226 | 258 | 290 | 310 | 318 | 318 | 306 | 291 | 278 | 270 | 6234 | 260 | 6506 | 260 |
| 25 | 272 | 281 | 293 | 303 | 310 | 308 | 293 | 266 | 233 | 198 | 167 | 148 | 144 | 160 | 187 | 218 | 251 | 279 | 298 | 305 | 299 | 289 | 276 | 266 | 6044 | 252 | 6308 | 252 |
| 26 | 264 | 270 | 283 | 295 | 307 | 311 | 302 | 284 | 255 | 219 | 188 | 163 | 150 | 154 | 174 | 203 | 236 | 266 | 290 | 305 | 308 | 302 | 291 | 280 | 6100 | 254 | 6374 | 255 |
| 27 | 274 | 274 | 285 | 298 | 309 | 317 | 315 | 303 | 283 | 251 | 217 | 187 | 165 | 158 | 166 | 186 | 214 | 241 | 266 | 285 | 295 | 293 | 286 | 278 | 6146 | 256 | 6418 | 257 |
| 28 | 272 | 267 | 272 | 284 | 296 | 307 | 312 | 308 | 295 | 271 | 242 | 212 | 186 | 170 | 169 | 179 | 200 | 223 | 245 | 264 | 277 | 282 | 278 | 273 | 6084 | 254 | 6353 | 254 |
| 29 | 269 | 260 | 261 | 270 | 281 | 294 | 303 | 305 | 299 | 287 | 267 | 241 | 219 | 203 | 194 | 196 | 209 | 226 | 244 | 263 | 278 | 286 | 287 | 286 | 6228 | 260 | 6512 | 260 |
| 30 | 284 | 276 | 272 | 272 | 279 | 290 | 299 | 304 | 305 | 299 | 287 | 269 | 252 | 236 | 224 | 222 | 225 | 233 | 247 | 260 | 271 | 280 | 283 | 282 | 6451 | 269 | 6730 | 269 |
| 1 | 279 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 250.9 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Dec. 1–Dec. 31, 2011
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|--------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 279 | 273 | 269 | 263 | 263 | 271 | 276 | 279 | 283 | 280 | 275 | 266 | 253 | 242 | 234 | 229 | 228 | 230 | 238 | 247 | 254 | 263 | 268 | 270 | 6233 | 260 | 6503 | 260 |
| 2 | 270 | 266 | 262 | 257 | 251 | 254 | 256 | 257 | 262 | 263 | 261 | 260 | 255 | 250 | 247 | 244 | 241 | 239 | 240 | 245 | 252 | 257 | 261 | 266 | 6116 | 255 | 6383 | 255 |
| 3 | 267 | 264 | 262 | 256 | 249 | 245 | 242 | 240 | 242 | 243 | 245 | 247 | 250 | 254 | 254 | 255 | 255 | 251 | 250 | 250 | 251 | 253 | 258 | 263 | 6046 | 252 | 6312 | 252 |
| 4 | 266 | 267 | 266 | 261 | 255 | 248 | 239 | 233 | 230 | 230 | 234 | 237 | 245 | 256 | 263 | 268 | 271 | 269 | 266 | 262 | 260 | 260 | 260 | 265 | 6111 | 255 | 6381 | 255 |
| 5 | 270 | 272 | 273 | 270 | 264 | 256 | 242 | 230 | 223 | 219 | 220 | 226 | 235 | 248 | 262 | 272 | 278 | 279 | 275 | 268 | 264 | 261 | 259 | 263 | 6129 | 255 | 6396 | 256 |
| 6 | 267 | 271 | 275 | 273 | 267 | 258 | 242 | 227 | 213 | 204 | 201 | 207 | 219 | 236 | 254 | 272 | 284 | 287 | 287 | 281 | 273 | 267 | 262 | 264 | 6091 | 254 | 6360 | 254 |
| 7 | 269 | 273 | 278 | 280 | 275 | 266 | 250 | 229 | 210 | 196 | 188 | 189 | 202 | 220 | 240 | 261 | 279 | 287 | 287 | 284 | 276 | 265 | 258 | 259 | 6021 | 251 | 6284 | 251 |
| 8 | 263 | 267 | 276 | 280 | 278 | 272 | 256 | 234 | 212 | 192 | 179 | 176 | 185 | 206 | 228 | 252 | 275 | 289 | 293 | 291 | 285 | 275 | 265 | 264 | 5993 | 250 | 6261 | 250 |
| 9 | 268 | 274 | 284 | 291 | 294 | 289 | 275 | 255 | 229 | 204 | 188 | 179 | 183 | 200 | 224 | 252 | 277 | 296 | 306 | 306 | 300 | 291 | 282 | 277 | 6224 | 259 | 6500 | 260 |
| 10 | 276 | 282 | 294 | 302 | 307 | 307 | 296 | 275 | 247 | 220 | 197 | 180 | 177 | 189 | 210 | 236 | 265 | 286 | 300 | 304 | 300 | 292 | 281 | 273 | 6296 | 262 | 6566 | 263 |
| 11 | 270 | 274 | 284 | 294 | 303 | 306 | 299 | 282 | 256 | 227 | 199 | 177 | 168 | 173 | 189 | 216 | 244 | 267 | 286 | 295 | 295 | 288 | 277 | 269 | 6138 | 256 | 6400 | 256 |
| 12 | 262 | 264 | 273 | 284 | 294 | 303 | 301 | 289 | 268 | 239 | 211 | 185 | 168 | 168 | 179 | 200 | 228 | 253 | 274 | 290 | 295 | 291 | 282 | 273 | 6074 | 253 | 6341 | 254 |
| 13 | 267 | 264 | 270 | 281 | 293 | 304 | 306 | 300 | 286 | 260 | 230 | 204 | 184 | 175 | 178 | 194 | 218 | 242 | 263 | 280 | 289 | 287 | 280 | 272 | 6127 | 255 | 6392 | 256 |
| 14 | 265 | 259 | 259 | 268 | 280 | 291 | 297 | 296 | 288 | 269 | 244 | 218 | 196 | 182 | 178 | 185 | 201 | 222 | 242 | 259 | 270 | 274 | 268 | 261 | 5972 | 249 | 6226 | 249 |
| 15 | 254 | 246 | 241 | 244 | 253 | 265 | 272 | 274 | 273 | 262 | 243 | 221 | 201 | 185 | 177 | 179 | 189 | 204 | 223 | 240 | 251 | 260 | 261 | 255 | 5673 | 236 | 5923 | 237 |
| 16 | 250 | 244 | 237 | 235 | 242 | 252 | 260 | 265 | 267 | 265 | 255 | 239 | 224 | 212 | 201 | 199 | 204 | 211 | 226 | 240 | 250 | 261 | 264 | 259 | 5762 | 240 | 6017 | 241 |
| 17 | 255 | 249 | 242 | 235 | 235 | 240 | 246 | 253 | 258 | 260 | 259 | 254 | 244 | 237 | 229 | 223 | 223 | 227 | 233 | 241 | 250 | 258 | 262 | 264 | 5877 | 245 | 6138 | 246 |
| 18 | 261 | 254 | 247 | 237 | 229 | 227 | 227 | 230 | 233 | 237 | 241 | 242 | 243 | 243 | 240 | 237 | 234 | 233 | 236 | 240 | 247 | 254 | 259 | 264 | 5795 | 241 | 6061 | 242 |
| 19 | 266 | 263 | 258 | 251 | 242 | 234 | 228 | 225 | 228 | 232 | 238 | 248 | 258 | 265 | 270 | 274 | 271 | 267 | 264 | 260 | 262 | 265 | 267 | 271 | 6107 | 254 | 6381 | 255 |
| 20 | 274 | 271 | 267 | 257 | 244 | 231 | 214 | 201 | 195 | 194 | 200 | 211 | 227 | 246 | 260 | 274 | 281 | 280 | 279 | 274 | 269 | 271 | 271 | 274 | 5965 | 249 | 6246 | 250 |
| 21 | 281 | 285 | 283 | 278 | 269 | 255 | 233 | 216 | 204 | 195 | 196 | 204 | 222 | 245 | 269 | 290 | 303 | 308 | 307 | 300 | 292 | 284 | 279 | 281 | 6279 | 262 | 6564 | 263 |
| 22 | 285 | 288 | 290 | 289 | 282 | 268 | 244 | 219 | 197 | 177 | 169 | 171 | 186 | 209 | 238 | 265 | 287 | 302 | 306 | 302 | 295 | 284 | 276 | 274 | 6103 | 254 | 6381 | 255 |
| 23 | 278 | 284 | 290 | 294 | 291 | 282 | 263 | 235 | 205 | 179 | 159 | 151 | 159 | 177 | 204 | 239 | 268 | 290 | 304 | 305 | 298 | 288 | 278 | 274 | 5995 | 250 | 6271 | 251 |
| 24 | 276 | 284 | 294 | 302 | 308 | 305 | 291 | 267 | 236 | 202 | 175 | 158 | 155 | 170 | 194 | 225 | 258 | 286 | 304 | 312 | 309 | 300 | 287 | 278 | 6176 | 257 | 6453 | 258 |
| 25 | 277 | 284 | 293 | 304 | 314 | 319 | 311 | 291 | 263 | 228 | 194 | 167 | 153 | 156 | 172 | 197 | 228 | 257 | 278 | 290 | 292 | 284 | 270 | 258 | 6080 | 253 | 6332 | 253 |
| 26 | 252 | 253 | 262 | 275 | 289 | 299 | 299 | 291 | 269 | 237 | 204 | 174 | 153 | 147 | 156 | 178 | 205 | 233 | 258 | 274 | 282 | 278 | 267 | 258 | 5793 | 241 | 6041 | 242 |
| 27 | 248 | 243 | 251 | 265 | 281 | 297 | 304 | 302 | 291 | 269 | 238 | 209 | 187 | 174 | 174 | 189 | 212 | 237 | 259 | 277 | 288 | 286 | 278 | 269 | 6028 | 251 | 6285 | 251 |
| 28 | 257 | 249 | 249 | 257 | 274 | 289 | 298 | 302 | 297 | 283 | 260 | 233 | 210 | 193 | 186 | 194 | 209 | 228 | 247 | 263 | 274 | 275 | 268 | 257 | 6052 | 252 | 6298 | 252 |
| 29 | 246 | 236 | 229 | 230 | 241 | 257 | 268 | 275 | 277 | 270 | 255 | 236 | 218 | 204 | 196 | 197 | 208 | 224 | 240 | 256 | 268 | 272 | 269 | 261 | 5833 | 243 | 6084 | 243 |
| 30 | 251 | 240 | 232 | 230 | 236 | 248 | 259 | 269 | 274 | 272 | 266 | 252 | 238 | 228 | 220 | 218 | 225 | 235 | 247 | 260 | 268 | 272 | 273 | 265 | 5978 | 249 | 6231 | 249 |
| 31 | 253 | 244 | 234 | 226 | 226 | 232 | 239 | 246 | 251 | 251 | 248 | 243 | 234 | 228 | 223 | 221 | 225 | 232 | 239 | 249 | 256 | 259 | 262 | 261 | 5782 | 241 | 6034 | 241 |
| 1 | 252 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 251.1 | cm | | |

Table 1. (Continued)

Station : Syowa Station
 Latitude : 69° 00' 28" N
 Longitude : 39° 34' 13" E
 Duration : Jan. 1–Jan. 31, 2012
 Unit : Centimeter

The zero of the tide gauge:
 500 cm below Bench Mark No. 1040

| Date | Time | | | | | | | | | | | | | | | | | | | | | | | (24H) | | (25H) | | |
|----------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Sum | Mean | Sum | Mean |
| 1 | 252 | 245 | 236 | 229 | 226 | 224 | 229 | 235 | 239 | 243 | 245 | 245 | 245 | 246 | 246 | 249 | 252 | 256 | 262 | 269 | 274 | 276 | 277 | 278 | 5978 | 249 | 6252 | 250 |
| 2 | 274 | 265 | 258 | 250 | 243 | 239 | 235 | 236 | 238 | 240 | 242 | 245 | 251 | 256 | 261 | 266 | 272 | 273 | 275 | 279 | 280 | 280 | 280 | 280 | 6218 | 259 | 6495 | 260 |
| 3 | 277 | 271 | 264 | 258 | 249 | 241 | 234 | 226 | 224 | 224 | 224 | 228 | 238 | 248 | 258 | 268 | 276 | 280 | 283 | 284 | 285 | 285 | 286 | 286 | 6197 | 258 | 6483 | 259 |
| 4 | 286 | 282 | 280 | 276 | 269 | 260 | 249 | 238 | 231 | 225 | 224 | 228 | 237 | 250 | 265 | 280 | 292 | 298 | 300 | 300 | 296 | 292 | 289 | 289 | 6436 | 268 | 6726 | 269 |
| 5 | 290 | 291 | 290 | 287 | 282 | 270 | 255 | 240 | 225 | 214 | 209 | 212 | 221 | 236 | 255 | 274 | 289 | 298 | 301 | 300 | 293 | 285 | 280 | 279 | 6376 | 266 | 6655 | 266 |
| 6 | 279 | 282 | 284 | 285 | 281 | 271 | 257 | 236 | 217 | 201 | 189 | 187 | 196 | 212 | 235 | 260 | 280 | 294 | 302 | 303 | 296 | 286 | 280 | 277 | 6190 | 258 | 6468 | 259 |
| 7 | 278 | 284 | 290 | 293 | 294 | 289 | 275 | 254 | 231 | 207 | 190 | 184 | 187 | 204 | 229 | 256 | 281 | 300 | 310 | 314 | 309 | 298 | 289 | 285 | 6331 | 264 | 6615 | 265 |
| 8 | 284 | 290 | 298 | 306 | 312 | 309 | 296 | 277 | 250 | 220 | 197 | 182 | 180 | 192 | 214 | 241 | 269 | 289 | 305 | 310 | 304 | 295 | 283 | 274 | 6377 | 266 | 6649 | 266 |
| 9 | 272 | 276 | 284 | 296 | 306 | 308 | 300 | 284 | 259 | 228 | 200 | 178 | 168 | 176 | 195 | 221 | 251 | 277 | 295 | 305 | 305 | 295 | 282 | 274 | 6235 | 260 | 6503 | 260 |
| 10 | 268 | 267 | 277 | 291 | 304 | 313 | 312 | 301 | 279 | 250 | 220 | 193 | 178 | 178 | 192 | 216 | 244 | 272 | 293 | 305 | 306 | 297 | 284 | 272 | 6312 | 263 | 6575 | 263 |
| 11 | 263 | 259 | 265 | 280 | 295 | 307 | 313 | 308 | 293 | 267 | 236 | 207 | 186 | 177 | 183 | 201 | 226 | 251 | 273 | 289 | 294 | 288 | 276 | 263 | 6200 | 258 | 6452 | 258 |
| 12 | 252 | 244 | 245 | 257 | 275 | 290 | 302 | 305 | 298 | 280 | 253 | 226 | 203 | 188 | 187 | 199 | 220 | 242 | 265 | 282 | 289 | 287 | 277 | 263 | 6129 | 255 | 6378 | 255 |
| 13 | 249 | 238 | 233 | 239 | 254 | 272 | 285 | 294 | 296 | 287 | 268 | 244 | 222 | 207 | 201 | 206 | 221 | 242 | 264 | 281 | 290 | 292 | 286 | 274 | 6145 | 256 | 6405 | 256 |
| 14 | 260 | 245 | 236 | 238 | 247 | 263 | 278 | 289 | 295 | 296 | 287 | 270 | 254 | 238 | 229 | 229 | 235 | 248 | 264 | 278 | 287 | 289 | 283 | 272 | 6310 | 263 | 6569 | 263 |
| 15 | 259 | 243 | 231 | 223 | 226 | 235 | 246 | 257 | 267 | 272 | 274 | 268 | 257 | 250 | 244 | 240 | 242 | 250 | 261 | 271 | 279 | 282 | 280 | 274 | 6131 | 255 | 6392 | 256 |
| 16 | 261 | 247 | 234 | 222 | 217 | 219 | 223 | 232 | 241 | 249 | 256 | 257 | 257 | 256 | 256 | 255 | 256 | 260 | 267 | 273 | 279 | 281 | 280 | 277 | 6055 | 252 | 6324 | 253 |
| 17 | 269 | 257 | 244 | 232 | 222 | 214 | 212 | 214 | 218 | 225 | 235 | 242 | 250 | 258 | 265 | 271 | 273 | 275 | 278 | 281 | 282 | 281 | 281 | 280 | 6059 | 252 | 6334 | 253 |
| 18 | 275 | 267 | 257 | 245 | 233 | 221 | 208 | 202 | 198 | 199 | 205 | 213 | 226 | 243 | 259 | 273 | 280 | 284 | 286 | 284 | 280 | 279 | 278 | 278 | 5973 | 249 | 6250 | 250 |
| 19 | 277 | 273 | 268 | 263 | 252 | 237 | 219 | 203 | 192 | 184 | 183 | 192 | 206 | 227 | 251 | 273 | 289 | 298 | 302 | 301 | 295 | 289 | 287 | 287 | 6048 | 252 | 6337 | 253 |
| 20 | 289 | 291 | 291 | 289 | 284 | 271 | 249 | 227 | 204 | 186 | 178 | 177 | 186 | 207 | 233 | 258 | 280 | 296 | 303 | 299 | 291 | 282 | 275 | 274 | 6120 | 255 | 6396 | 256 |
| 21 | 276 | 280 | 286 | 291 | 292 | 284 | 266 | 241 | 213 | 187 | 168 | 159 | 164 | 181 | 209 | 238 | 264 | 286 | 298 | 298 | 292 | 279 | 269 | 267 | 5988 | 250 | 6256 | 250 |
| 22 | 268 | 274 | 284 | 294 | 302 | 301 | 289 | 267 | 237 | 207 | 180 | 162 | 159 | 173 | 198 | --- | --- | --- | 298 | 301 | 294 | 281 | 269 | 261 | ---- | ---- | ---- | ---- |
| 23 | 259 | 265 | 278 | 293 | 308 | 315 | 311 | 295 | 268 | 237 | 206 | 182 | 169 | 173 | 193 | 220 | 248 | 274 | 293 | 301 | 297 | 284 | 267 | 253 | 6189 | 258 | 6435 | 257 |
| 24 | 246 | 248 | 259 | 276 | 294 | 306 | 309 | 299 | 278 | 249 | 217 | 188 | 169 | 166 | 179 | 202 | 229 | 256 | 275 | 287 | 287 | 275 | 259 | 244 | 5997 | 250 | 6229 | 249 |
| 25 | 232 | 230 | 237 | 256 | 278 | 295 | 305 | 304 | 291 | 270 | 242 | 214 | 192 | 183 | 190 | 208 | 234 | 258 | 278 | 293 | 296 | 286 | 270 | 254 | 6096 | 254 | 6337 | 253 |
| 26 | 241 | 233 | 233 | 248 | 269 | 287 | 301 | 305 | 300 | 284 | 260 | 234 | 212 | 198 | 197 | 210 | 231 | 253 | 271 | 286 | 292 | 284 | 268 | 252 | 6149 | 256 | 6387 | 255 |
| 27 | 238 | 225 | 224 | 233 | 252 | 274 | 290 | 299 | 301 | 294 | 276 | 255 | 237 | 224 | 221 | 228 | 245 | 265 | 281 | 296 | 301 | 295 | 282 | 263 | 6299 | 262 | 6546 | 262 |
| 28 | 247 | 234 | 225 | 226 | 239 | 258 | 272 | 283 | 290 | 287 | 277 | 264 | 248 | 238 | 234 | 237 | 249 | 265 | 280 | 292 | 297 | 294 | 285 | 269 | 6290 | 262 | 6542 | 262 |
| 29 | 252 | 239 | 228 | 225 | 232 | 246 | 258 | 270 | 278 | 278 | 275 | 266 | 254 | 247 | 245 | 246 | 256 | 267 | 279 | 292 | 296 | 294 | 288 | 275 | 6286 | 262 | 6547 | 262 |
| 30 | 261 | 249 | 238 | 231 | 232 | 241 | 250 | 260 | 267 | 271 | 272 | 269 | 263 | 262 | 263 | 266 | 274 | 283 | 292 | 302 | 307 | 306 | 301 | 291 | 6451 | 269 | 6729 | 269 |
| 31 | 278 | 264 | 252 | 242 | 235 | 237 | 240 | 242 | 248 | 250 | 251 | 251 | 250 | 252 | 257 | 261 | 269 | 276 | 282 | 287 | 290 | 290 | 286 | 279 | 6269 | 261 | 6540 | 262 |
| 1 | 271 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Mean | | | | | | | | | | | | | | | | | | | | | | | | | 258.1 | cm | | |
| (30 days mean) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 2. Harmonic constants at Syowa Station

Syowa Station (Nishi-no-ura)

Position: Lat. 69-00-28S, Lon. 39-34-13E

Epoch and Duration of Analysis:

Epoch: 2011/01/28

Central Date: 2011/07/31

Duration in Days: 369 days

Missing Hour: 14 hours

Mean Sea Level: 251.5 cm

Harmonic Constants:

| | H (cm) | K (deg.) | G (deg.) | | H (cm) | K (deg.) | G (deg.) |
|------------------|--------|-------------|-------------|-------------|--------|-------------|-------------|
| SA | 2.06 | 28.75 | 28.87 | M_2 | 24.77 | 160.67 | 168.48 |
| SSA | 3.17 | 163.53 | 163.77 | MKS_2 | 0.11 | 265.94 | 273.99 |
| MM | 2.23 | 257.25 | 258.89 | λ_2 | 0.28 | 145.61 | 154.83 |
| MSF | 0.43 | 247.09 | 250.14 | L_2 | 1.24 | 123.52 | 132.96 |
| MF | 2.06 | 192.36 | 195.66 | T_2 | 1.23 | 165.63 | 176.37 |
| 2Q ₁ | 1.02 | 327.02 | 326.01 | S_2 | 20.02 | 176.10 | 186.96 |
| σ_1 | 1.15 | 337.43 | 336.64 | R_2 | 0.06 | 169.20 | 180.18 |
| Q ₁ | 5.91 | 339.23 | 339.85 | K_2 | 5.63 | 174.93 | 186.04 |
| ρ_1 | 1.05 | 335.14 | 335.99 | MSN_2 | 0.11 | 89.08 | 101.57 |
| O ₁ | 24.27 | 350.24 | 352.50 | KJ_2 | 0.35 | 28.83 | 41.57 |
| MP ₁ | 0.29 | 56.94 | 59.45 | $2SM_2$ | 0.24 | 119.65 | 133.55 |
| M ₁ | 0.97 | 359.05 | 362.96 | MO_3 | 0.08 | 182.59 | 192.66 |
| χ_1 | 0.40 | 1.47 | 5.61 | M_3 | 0.20 | 261.79 | 273.50 |
| π_1 | 0.33 | 2.45 | 7.63 | SO_3 | 0.07 | 310.53 | 323.65 |
| P ₁ | 7.48 | 355.36 | 360.66 | MK_3 | 0.07 | 242.36 | 255.73 |
| S ₁ | 0.43 | 73.68 | 79.11 | SK_3 | 0.43 | 349.56 | 365.97 |
| K ₁ | 22.34 | 357.09 | 362.64 | MN_4 | 0.23 | 43.54 | 57.53 |
| ψ_1 | 0.30 | 51.72 | 57.40 | M_4 | 0.40 | 105.03 | 120.65 |
| ϕ_1 | 0.40 | 347.58 | 353.38 | SN_4 | 0.04 | 130.51 | 147.55 |
| θ_1 | 0.23 | 7.38 | 14.34 | MS_4 | 0.15 | 165.66 | 184.33 |
| J ₁ | 0.97 | 352.98 | 360.17 | MK_4 | 0.03 | 154.66 | 173.58 |
| SO ₁ | 0.38 | 345.94 | 354.54 | S_4 | 0.04 | 204.09 | 225.81 |
| OO ₁ | 0.62 | 337.07 | 345.92 | SK_4 | 0.10 | 225.67 | 247.64 |
| OQ ₂ | 0.07 | 168.02 | 170.90 | $2MN_6$ | 0.05 | 25.91 | 47.71 |
| MNS ₂ | 0.07 | 15.91 | 19.04 | M_6 | 0.15 | 93.53 | 116.96 |
| 2N ₂ | 0.49 | 116.66 | 121.20 | MSN_6 | 0.09 | 153.27 | 178.12 |
| μ_2 | 0.53 | 106.32 | 111.08 | $2MS_6$ | 0.30 | 187.40 | 213.89 |
| N ₂ | 4.62 | 151.30 | 157.48 | $2MK_6$ | 0.09 | 186.19 | 212.92 |
| ν_2 | 0.77 | 162.37 | 168.77 | $2SM_6$ | 0.12 | 258.73 | 288.27 |
| OP ₂ | 0.02 | 23.65 | 31.21 | MSK_6 | 0.08 | 243.01 | 272.79 |